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The 2008 IDA Cost Research Workshop: Contractor Data Reporting Systems

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PREFACE

The Institute for Defense Analyses (IDA) prepared this document as part of a project that is jointly sponsored by IDA's Independent Research Program and the Office of the Director, Program Analysis and Evaluation, in the Office of the Secretary of Defense (OSD).

Every year, OSD's Cost Analysis Improvement Group (CAIG) reviews the status of the ability of the Department of Defense (DoD) to estimate the costs of forces and weapons at the DoD Cost Analysis Symposium. Later, at the IDA Cost Research Workshop, the CAIG meets with representatives from selected government offices, Federally Funded Research and Development Centers, and military universities to discuss current issues and to review ongoing and planned cost research activities. Following these gatherings, the CAIG uses the information gathered to focus cost activities and investments on areas needing the most attention given upcoming acquisition decisions.

This document contains material related to that process for the 2008 cycle. Its purpose is to make the material available to those who participated in the 2008 IDA Cost Research Workshop, and for other purposes the Chairman of CAIG deems appropriate. The material has not been evaluated, analyzed, or subjected to formal IDA review.

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I. INTRODUCTION

Several Department of Defense (DoD) offices are responsible for estimating and monitoring the costs of defense systems and forces in support of planning, programming, budgeting, and acquisition decisions. For example, the Cost Analysis Improvement Group (CAIG) in the Office of the Secretary of Defense (OSD) provides independent cost estimates and reports on life-cycle costs of major defense acquisition programs (MDAPs) in Acquisition Category ID (see Reference [1]). Cost agencies and centers in the relevant defense components provide independent estimates for other MDAPs.

The OSD CAIG leads efforts by these and other offices and organizations to improve the Defense Department's technical capabilities to forecast future costs. Near the beginning of each year, during the DoD Cost Analysis Symposium, the CAIG reviews the status of the Defense Department's capabilities to estimate the costs of defense systems. Several months later, representatives from offices that sponsor defense cost research meet at the Institute for Defense Analyses (IDA) at the Cost Research Workshop to exchange information on their ongoing and planned cost research projects and discuss current issues. The workshop, jointly sponsored by the OSD CAIG and IDA, has been held every year since 1989 (see References [2 through 21]).

The 2008 IDA Cost Research Workshop, held on May 22, 2008, focused on issues related to Department of Defense contractor data reporting systems. Table 1 shows the participants in this year's workshop, and Table 2 presents the workshop agenda.

This document summarizes the proceedings of the 2008 workshop (Chapter II) and catalogs defense cost research projects in progress or planned at the time of the workshop (Chapter III).

Table 1. Participants in the 2008 IDA Cost Research Workshop

Office/Organization	Representatives
Office of the Director, Program Analysis and Evaluation	Richard Burke
Deputy Assistant Secretary of the Army for Cost and Economics	Stephen Bagby
Army Tank-automotive and Armaments Command	Richard Bazzy
Army Aviation and Missile Command	Claudia Rhen
Naval Center for Cost Analysis	Wendy Kunc
Naval Air Systems Command	David Burgess
Naval Sea Systems Command	Lisa Pfeiffer/Jessica Marsh
Naval Surface Warfare Center, Dahlgren Division	Jeffrey Francisco/Virginia Virtudazo
Marine Corps Systems Command, Assistant Commander Program	David Cashin
Air Force Cost Analysis Agency	Richard Hartley
Air Force Electronics Systems Center	Gary Banker
The Aerospace Corporation	John Lang
RAND Corporation	Obaid Younossi
CNA Corporation	Jino Choi
Institute for Defense Analyses	David McNicol

Table 2. Agenda for the 2008 IDA Cost Research Workshop

Welcome and Administrative Remarks
David McNicol, Director, Cost Analysis and Research Division, Institute for Defense Analyses

Introduction
Richard Burke, Director, Cost Analysis Improvement Group, Office of the Secretary of Defense

Invited Presentations

DoD Systems and Software Engineering Perspectives
Kristen Baldwin, Office of the Under Secretary of Defense, Acquisition, Technology and Logistics/ Systems and Software Engineering

Earned Value Management (EVM) Process Integrity and Efficiency
Dave Kester, Defense Contract Management Agency

Data issues
Dave Burgess, Naval Air Systems Command

Department of Defense Cost Data Quality
Wilson Rosa, Air Force Cost Analysis Agency

Data for Costing
Mort Anvari, Office of the Deputy Assistant Secretary of the Army for Cost and Economics

Service Panel Discussion

Stephen Bagby, Deputy Assistant Secretary of the Army for Cost and Economics
Wendy Kunc, Director, Naval Center for Cost Analysis
Rich Hartley, Director, Air Force Cost Analysis Agency

II. SUMMARY OF PROCEEDINGS

A. INTRODUCTION

Participants at the 2008 IDA Cost Research Workshop discussed quality issues related to the contractor data reporting systems that support the Department of Defense (DoD) cost analysis function. These systems included the Cost and Software Data Reporting (CSDR) system, the Earned Value Management System (EVMS), and a potential new Operating and Support (O&S) data collections system for sustainment contracts. These discussions pointed to two major overarching data quality considerations: (1) data accessibility and (2) policy dissemination and compliance. Richard Burke, Chairman of the CAIG, also made a general observation about data quality and use.

The workshop consisted of five individual presentations (see Table 2 in Chapter I) and a panel discussion of key data issues and recommendations involving the reporting systems mentioned above. At the conclusion of the conference, the CAIG Chairman provided a way forward with a summary of the major issues, required actions, and responsible implementing organizations. The following summary of proceedings is organized around the CAIG Chairman's perspective. Issues are categorized by the aforementioned three reporting systems, two overarching considerations, and one general observation. Each issue summary contains a brief discussion of the problems, recommendations, and responsible action organization.

B. COST AND SOFTWARE DATA REPORTING

The CSDR consists of two systems: Contractor Cost Data Reporting (CCDR) and Software Resources Data Reporting (SRDR). The CCDR system focuses on the collection of actual costs while the SRDR system supplements these costs with software metrics intended to help users understand software development projects and estimate their costs. The next two subsections describe four CCDR and two SRDR issues addressed at the workshop.

1. Contractor Cost Data Reporting

Issue: There is a need for a new contractor Overhead Report to replace the deleted DD Form 1921-3

Discussion: The requirement that contractors submit a Plant-Wide Data Report, DD Form 1921-3, was removed in 1999 to streamline contractor data collection. The report provided a summary of the plant business base and included direct costs by program and function and indirect costs by major functions and cost categories. The data were used to understand and estimate overhead rates. The intent was to replace the 1921-3 report with other data already available from the contractor to support the forward pricing rate agreement (FPRA) process. Based upon subsequent DoD use and analysis, these new sources of cost data proved to be an inadequate substitute and largely could not be used for cost estimating purposes. As a result, the Defense Cost and Resource Center (DCARC) established an Overhead Reporting working group (WG) of volunteers from the CSDR focus group (FG). The WG was responsible for developing a proposed format and related instructions to satisfy current cost estimating needs.

Recommendation: Those present at the workshop unanimously agreed to authorize the DCARC and the CSDR FG to proceed with developing a proposed reporting package based upon the 1999 DD Form 1921-3 reporting requirements. This effort will include recommended implementation procedures with the goal to begin new reporting in early CY 2009.

Primary Action Responsibility: DCARC/CSDR FG, CAIG, and Service Cost Agencies (CAs).

Issue: Some analysts questioned the value and utility of the Progress Curve Report, DD Form 1921-2.

Discussion: The Progress Curve Report captures recurring costs on lot or unit data for selected work breakdown structure (WBS) elements on high-quantity programs from research and development through low-rate initial production and the first full-rate production buy. The purpose of the data is to improve understanding of unit and lot cost data and to facilitate the development of progress or learning curves. Some cost analysts at the workshop questioned the value and utility of the data and suggested the data could be deleted without adversely affecting cost estimating. Other analysts were reluctant to do away with the 1921-2 without further review and analysis.

Recommendation: The latest version of the 1921-2 was released in April 2007 and users should be given ample time to express their concerns about the report content and its use in cost estimating. User feedback should be encouraged and evaluated by the DCARC in conjunction with the CSDR FG. Any proposed changes to the requirement or the report content should be processed through these channels.

Primary Action Responsibility: DCARC/CSDR FG, CAIG, and Service CAs.

Issue: The quality and timeliness of CSDR data being provided by rotary-wing contractors are not adequate.

Discussion: The quality of cost data provided by some rotary-wing aircraft contractors has been suspect. Both Naval Air Systems Command (NAVAIR) and the CAIG have recently expressed concern over the accuracy, timeliness, and use of the CSDR data such contractors provide.

Recommendation: The DCARC will review and assess the CSDR submissions by the major rotary-wing aircraft contractors for the past year. DCARC will coordinate those results with NAVAIR and work closely with the submitting contractors to improve their CSDR submissions. DCARC will report the results of those efforts by 30 September 2008 to the CAIG Chairman, who will determine the need for further action.

Primary Action Responsibility: DCARC, NAVAIR, and CAIG.

Issue: Cost analysts need current technical metrics on programs and contracts to support the cost estimating function.

Discussion: Cost estimating requires cost, schedule, and technical data to estimate the future costs of weapon systems. CCDR forms are effective in capturing actual costs but do not routinely capture needed technical data. The DD 1921-2 is the only CSDR report that requires technical metrics. However, it does not collect all the needed metrics and is applied only selectively through the first year of production. There was general agreement at the workshop on the need to obtain accurate and timely technical data. The DCARC Director noted that he and the CSDR FG had recently established a technical metrics WG. The WGs are generally organized by major commodity in MIL-HDBK-881A, “Work Breakdown Structures for Defense Materiel Items,” and are responsible for developing proposed technical metrics and any WBS changes they deem necessary for their particular commodities.

Recommendation: The CAIG Chairman and workshop participants strongly endorsed the efforts of DCARC and the CSDR FG. The CAIG Chairman's major concern is to avoid collecting data already available to the government. He expects the CSDR working groups to thoroughly research existing data sources and fully coordinate with their systems engineering counterparts. The DCARC will continue to lead the efforts and process the results through normal channels. The final results will be reported to the CAIG Chairman and Service CAs within the next 9 months.

Primary Action Responsibility: DCARC/CSDR FG, CAIG, and Service CAs.

2. Software Resources Data Reporting

Issue: Some analysts suggested that substantive changes were immediately needed to enhance the utility of the SRDR system reports.

Discussion: The SRDR system consists of one government and two developer reports designed to show key metrics that describe the process used to develop a software application. Some cost analysts questioned the value and utility of some the reports' contents and recommended that immediate changes be made. Other analysts were not prepared to make specific recommendations at this time.

Recommendation: As was the case with the recommendation for the CCDR system's DD Form 1921-2, Progress Curve Report, the latest version of the SRDR sample formats and instructions were released in April 2007, and users should be given ample time to express their concerns about the report content and its use in cost estimating. User feedback should be encouraged and evaluated by the DCARC in conjunction with the CSDR FG. Any proposed changes to the requirement or report content should be processed through these channels.

Primary Action Responsibility: DCARC/CSDR FG and CAIG.

Issue: DoD organizations with software expertise do not routinely participate in the review and validation of SRDR forms.

Discussion: Review and validation is largely performed by the DCARC. Other organizations, such as the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics, Systems and Software Engineering (OUSD/AT&L/SSE), and NAVAIR possess extensive software knowledge and experience. Data validation

effectiveness could be improved if these organizations share some validation responsibility with the DCARC.

Recommendation: The DCARC should identify those DoD organizations with the requisite expertise and coordinate an SRDR validation action plan with them. The DCARC should brief the plan and status to the CAIG Chairman by September 30, 2008.

Primary Action Responsibility: DCARC, OUSD/AT&L/SSE, NAVAIR, and CAIG.

C. EARNED VALUE MANAGEMENT SYSTEM

EVMS provides status on work progress based upon an integrated picture of contract cost, schedule, and technical accomplishment. The EVMS reports include the Contract Performance Report, Integrated Master Schedule, and the Contract Funds Status Report. One issue was identified during the workshop regarding EVMS review planning.

Issue: EVMS reviews performed by DCMA can be more useful to cost analysts if conducted just before data are needed for cost estimating.

Discussion: The Defense Contract Management Agency (DCMA) is the executive agent for EVMS. DCMA is responsible for performing EVMS surveillance to verify that a supplier's management control systems meet the full intention of the ANSI/EIA 748-A Standard. This includes determining whether the reporting systems are providing relevant (predictive, feedback, and timely) and reliable (verifiable, valid, and objective) data. These report data may be used by cost analysts at various predictable times in developing cost estimates.

Recommendation: DCMA should coordinate with the cost analysis community to better align surveillance plans with the community's expected need and use of EVMS data.

Primary Action Responsibility: DCMA, CAIG, and Service CAs.

D. OPERATIONS AND SUPPORT COST AND PERFORMANCE REPORTING

Issue: Develop a contractor O&S report that satisfies cost estimating requirements on logistics contracts.

Discussion: Several participants discussed the lack of O&S cost data for major weapon systems and subsystems that are sustained through Performance Based Logistics

(PBL) or other forms of Contractor Logistics Support (CLS). Typically, such arrangements provide multiple logistics functions and services as part of a single contract, without a breakout of actual costs by functional element (such as depot maintenance, consumable items, and so forth) suitable for O&S cost analysts and the service Visibility and Management of Operating and Support Costs (VAMOSC) data systems. The Army CA Director also noted that the Army had recently developed its own process for standardized cost reporting on major CLS contracts.

Recommendation: To establish useful O&S reporting for major sustainment contracts, the DoD O&S WG should review the cost reporting recommendations in a forthcoming IDA study on this subject, suggest any improvements, and assist in the initiation of a series of pilot programs to validate the approach.

Primary Action Responsibility: PA&E/O&S WG and DCARC/CSDR FG.

E. DATA ACCESSIBILITY

Issue: The CAIG Chairman noted that cost analysts did not know and have access to needed information about the quality and timeliness of EVMS data such as those contained in DCMA Reports and DCAA Audits.

Discussion: The CAIG Chairman expressed concern about key EVMS information not being readily available to analysts using the data. For example, in many CAIG reviews, the analysts were unaware of major findings in relevant reports and audits about specific plants, programs, and contracts. Such information potentially could have considerable bearing on the validity of reported cost data that were being collected and used by the analysts.

Recommendation: Establish a process (1) where CAIG and Service CA analysts are notified of the existence of recent reports and audits and (2) which provides the analysts with a mechanism for obtaining access to such documents after providing proper credentials. This action will be worked by DCMA, in consultation with the CAIG and the Service CAs.

Primary Action Responsibility: DCMA, CAIG, and Service CAs.

Issue: Cost analysts need ready access to current Cost Analysis Requirements Descriptions (CARDs).

Discussion: The Air Force Cost Analysis Agency presentation, "Department of Defense Cost Data Quality," included a suggestion that the initial and final CARD for each program should be archived at a central site available to the cost analysis community in electronic form. One possibility would be to include the CARD with the other elements of the Defense Automated Cost Information Management System (DACIMS) managed by the DCARC. The CARDs provide a useful historical reference for major acquisition programs, with considerable technical, schedule, and programmatic information. The Army presentation, "Data for Costing," noted that the Army has already assembled a CARD database.

Recommendation: Establish a repository for CARDs that would be available to registered users throughout the cost community. The CAIG Chairman offered an alternative solution, where each Service CA would store its own CARDs, and the CAIG would develop a front-end interface for the entire community that could access any CARD from each of the Service CA sites.

Primary Action Responsibility: CAIG and Service CAs.

F. POLICY DISSEMINATION AND COMPLIANCE

Several reporting problems were noted during the workshop that largely occurred either because analysts were not aware of current policies or because adequate policies and procedures had not been developed. Two issues were identified and discussed.

Issue: Some analysts were not aware of key EVMS and CSDR policies.

Discussion: Throughout the workshop, several participants noted instances in which the EVMS and CSDR policies and procedures were not being complied with. The EVMS presentation included an example showing there were insufficient controls of retroactive changes to data pertaining to previously reported actual costs, earned value, or budgets—contrary to the intent of the EVMS standard (ANSI-748-A). Such changes can have the effect of masking emerging problems with underlying cost and schedule trends. Several other presentations noted policy compliance issues, including:

- Contractors who submit CSDR forms have been given too much latitude in deviating from the WBS guidelines in MIL-HDBK-881A, which weakens the standardization of terms and definitions used for cost reporting.

- Acceptance and use of Earned Value Management (EVM) by government and contractor program management has been insufficient, and 40 percent of the major defense acquisition program (Acquisition Category I) prime contractors have significant issues with implementation of their EVMS process, to the point that issues exist that distort performance data and impact management decisions.
- Not all required CSDR reports were being submitted when required, and some fielded programs have failed to provide the final CSDR system reports (DD Forms 1921 and 1921-1) upon contract closeout.

Recommendation: Rather than address the individual noncompliance issues, the CAIG Chairman elected to focus on the need for improved dissemination of EVM and CSDR policies and procedures to all intended users and data providers. As part of this effort, appropriate sections of the Defense Acquisition Guidebook must be kept current, and they must provide appropriate links to the relevant policy memos, regulations (instructions, manuals), guides, and Web sites.

Primary Action Responsibility: AT&L/Acquisition Resources and Analysis and the CAIG.

Issue: Acquisition contract requirements are not consistently included in contracts and standard contractor processes are not properly applied to contracts.

Discussion: Several problems may arise after a contract is awarded. First, policy requirements may not be consistently applied on new contracts. Second, contractors may misinterpret contract requirements. Third, there may be a lack of understanding on application of company and government processes to a specific contract. The Defense Federal Acquisition Regulation Supplement (DFARS) provides for a post-award conference at the government contracting officer's discretion to deal with some of these issues. However, the conference does not address all the requirements and is not process oriented. The Defense Acquisition University (DAU) has initiated startup workshops for major programs after prime contract award. The EVM WG has been developing an Expanded Post Award Conference (EPAC) that comprehensively addresses the requirements and process problems. DAU and the EPAC WG have begun discussing the possibility of integrating the startup workshops and the EPAC where possible.

Recommendation: The EVM and EPAC WGs should brief and obtain support from senior acquisition leadership in OUSD/AT&L, PA&E, and DAU in their continuing efforts to develop and potentially implement EPAC,

Primary Action Responsibility: EVM/EPAC WGs, OUSD/AT&L, CAIG, and Service CAs.

G. GENERAL OBSERVATION ABOUT DATA

During the workshop, several participants noted that acquisition management—including program managers, military service, and OSD staffs, and senior leadership at all levels—were not consistently and effectively using available data to assist in their decisionmaking. The organizations primarily responsible for CSDR and EVMS use (CAIG, OUSD/AT&L, DCMA, and Service CAs) must ensure that senior leadership are aware of data quality and use issues. This includes providing periodic updates to the OSD and Service Acquisition Executives about the need, availability, and use of key cost and performance data for decisionmaking.

III. ONGOING AND PLANNED COST RESEARCH STUDIES

A. STUDY TITLES

The titles of the studies listed here are grouped according to the offices and organizations performing them in the order the summaries were submitted to IDA. We assigned each study title a number using abbreviations for the reporting office/organization name (e.g., PA&E-1).

Office of the Secretary of Defense, Program Analysis and Evaluation (PA&E)

PA&E–1	Major Defense Acquisition Program (MDAP), Cost Growth (CG) and Other Study Support
PA&E–2	CAIG Database Development
PA&E–3	Force and Infrastructure Studies
PA&E–4	Defense Cost and Resource Center (DCARC)
PA&E–5	USMA Special Studies to Support EMAD/FICAD Analysis
PA&E–6	Global Defense Posture: Forward Operating Site/Cooperative Security Location Cost Model (CC-339K)
PA&E–7	O&M Program Balance and Cost Related Drivers
PA&E–8	QDR: Medical Readiness Review (CC-300K)
PA&E–9	Collection of O&S Data from Weapon System Support Contracts
PA&E–10	Resource Analysis Course for PA&E/Other Analysts
PA&E–11	IDA Cost Research Workshop
PA&E–12	Revision of CAIG Policy, Procedure, and Processes
PA&E–13	Defense Agency Performance Plans Course
PA&E–14	Medical Cost Growth
PA&E–15	KC-X Pricing Support (CC-225K)
PA&E–16	Economic and Manpower Forecasting Models
PA&E–17	DCARC CLS and PBL Data Collection
PA&E–18	Manpower Cost Modeling (CC-600K)
PA&E–19	O&S Analytical Services
PA&E–20	Base Realignment and Closure (BRAC) 2005 Joint Basing Implementation (CC-$1,050K)
PA&E–21	Readiness Support: U.S. Forces and Weapon Systems Analysis
PA&E–22	Software Cost Control (SSE-5) (CC-350K)
PA&E–23	Improving the Operating and Support Resource Management System for the Department of Defense (CC-400K)
PA&E–24	Costing the Benefits of Competition in Acquisition (CC-390K)

Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE)

DASA-CE–1	Operating and Support Management Information System (OSMIS) Database Management
DASA-CE–2	ACEIT Enhancement, Help-Desk/Training, Consulting
DASA-CE–3	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Systems
DASA-CE–4	Electronics Methodologies Development
DASA-CE–5	Tri-Service Missile and Smart Munitions Database
DASA-CE–6	Wheel and Tracked Vehicle (Manned and Robotic) Database and Methodology Development
DASA-CE–7	Aircraft Database Development
DASA-CE–8	Standard Service Cost (SSC)
DASA-CE–9	Personnel Costing System
DASA-CE–10	Force and Contingency Cost Models Update
DASA-CE–11	Software Database
DASA-CE–12	Joint Integrated Analysis Tool (JIAT)
DASA-CE–13	Cost & Performance Portal (CPP)

TACOM Life Cycle Management Command (LCMC)

LCMC–1	Light Tactical Wheeled Vehicle Optimization Model
LCMC–2	Effect of Competition on the Procurement of Secondary Supply Parts
LCMC–3	Risk Analysis in Automated Cost Estimating Integrated Tool (ACEIT)

Army Aviation and Missile Command (AMCOM)

No summaries submitted.

TRADOC Analysis Center – White Sands Missile Range (TRAC-WSMR)

TRAC-WSMR–1	Cost Analysis for AoAs

Naval Center for Cost Analysis (NCCA)

NCCA–1	Operating and Support Cost Analysis Model (OSCAM-Naval Suite)
NCCA–2	Aircraft Operating and Support Cost Analysis Model (OSCAM-Air)
NCCA–3	Naval VAMOSC Management Information System
NCCA–4	NCCA Online Document Library
NCCA–5	NCCA Software Development Estimating Handbook Update
NCCA–6	Aircraft / Ship / Weapons / Major System Acquisition Cost and Requirements Database
NCCA–7	Portfolio Analysis Pilot and Methods
NCCA–8	NCCA Inflation Calculator (NIC) Enhancements
NCCA–9	NATO Independent Cost Estimating and its Role in Capability Portfolio Analysis

Naval Air Systems Command (NAVAIR)

NAVAIR–1	Joint Cost Analysis Research & Database (JCARD) Working Group (WG): Web Information System
NAVAIR–2	Overhead Rate Study
NAVAIR–3	Hourly Labor Wrap Rates Database

NAVAIR–4	HAPCA (Historical Aircraft Procurement Cost Archive) Database
NAVAIR–5	Software Growth Calibration Database
NAVAIR–6	Repairable and Consumable Material Cost Growth Analyses
NAVAIR–7	Recurring Cost to Train Aircraft Squadron Personnel
NAVAIR–8	Representative Squadron Operating and Support Cost for Various T/M/S Aircraft
NAVAIR–9	Performance Based Logistics (PBL)
NAVAIR–10	Software Data Consolidation and Analysis
NAVAIR–11	Naval Aviation Propulsion Cost Analysis of Type/Model/Series Engines

Naval Sea Systems Command (NAVSEA)

NAVSEA–1	Material Vendor Survey
NAVSEA–2	NAVSEA Common Cost Model (NCCM) – Ships
NAVSEA–3	NAVSEA 05C Information Management System (IMS)

Naval Surface Warfare Center, Dhalgren Division (NSWCDD)

No summaries submitted.

Marine Corps Systems Command, Assistant Commander Programs (MCSC)

MCSC–1	Distributed Common Ground/Surface System Marine Corps Analysis of Alternatives (DCGS-MC AoA)
MCSC–2	Courses of Action (COA) for HMMWV Life-Cycle Optimization
MCSC–3	TLCSM-AT Model Development

Air Force Cost Analysis Agency (AFCAA)

AFCAA–1	Joint Cost Analysis Research Database (JCARD)
AFCAA–2	Air Force Total Ownership Cost (AFTOC) Management Information System
AFCAA–3	Air Force Inflation Model and Tutorial
AFCAA–4	Cost Handbook Update
AFCAA–5	Performance Activated COTS Electronics Relationships (PACER) (Formerly COTS Electronics Database/Modeling)
AFCAA–6	Force Analysis On-Site Analytical and Technical Analytical Support
AFCAA–7	Aircraft Modification Cost Estimating Handbook
AFCAA–8	Methods for Predicting Development/Production Costs
AFCAA–9	Software Cost Estimating Handbook
AFCAA–10	Joint Information Technology Software Development Database
AFCAA–11	Space Database Improvement
AFCAA–12	Engineering Change Proposal (ECP) Study
AFCAA–13	Satellite Schedule Model
AFCAA–14	NASA/Air Force Cost Model (NAFCOM)
AFCAA–15	Advanced Extremely High Frequency (AEHF) Cost Performance
AFCAA–16	Air Force Historical Aircraft Procurement Cost Archive (HAPCA)

Air Force Space and Missile Systems Center (SMC)

SMC–1	Unmanned Space Vehicle Cost Model 9th Edition (USCM 9)
SMC–2	ECO Study
SMC–3	COSYSMO Calibration for SMC

SMC–4	SMC Cost/Schedule Reference Model (C/SRM)
SMC–5	"In Progress" Program Cost Methodology Study
SMC–6	Costs Associated with COTS Software Usage
SMC–7	Space System Weight Growth Analysis

Air Force Electronics Systems Center (ESC)

ESC–1	ESC Acquisition Support Cost Factors and Cost Estimating Relationships (CER)
ESC–2	Real Metrics for Effort Sizing

National Reconnaissance Office Cost Analysis Improvement Group (NRO CAIG)

NRO CAIG–1	Space Cost Analysis Templates, Toolkits and Repository (SCATTR)
NRO CAIG–2	Advanced Cost Modeling Environment (ACME)
NRO CAIG–3	Software Database
NRO CAIG–4	NRO CAIG's Software Development Methodology
NRO CAIG–5	Complexity Based Risk Analysis (CoBRA)
NRO CAIG–6	Demonstration-Satellite Cost Model (DSCM)
NRO CAIG–7	Satellite Sizing Model
NRO CAIG–8	Commercial Acquisition Programs Study (CAPS)
NRO CAIG–9	Space System Data Collections
NRO CAIG–10	Space Hardware CERs
NRO CAIG–11	NRO Subsystem Cost Model
NRO CAIG–12	Ground System Cost Model
NRO CAIG–13	System Engineering, Integration, Test, and Program Management (SEITPM) Study
NRO CAIG–14	Scheduling and Phasing Model
NRO CAIG–15	Box vs. Subsystem Estimating Accuracy
NRO CAIG–16	Optical Payload Cost Models
NRO CAIG–17	Ground Methods Development
NRO CAIG–18	NRO Inflation Index

The Aerospace Corporation (AEROSPACE)

AEROSPACE–1	Ground System Cost Model
AEROSPACE–2	Small Satellite Cost Model (SSCM)

The MITRE Corporation (MITRE)

MITRE–1	Review and Assess Applicability of the International Software Benchmark Repositories
MITRE–2	Economic Information Design Forecasting
MITRE–3	Adapting Venture Capital Concepts to System Acquisitions

RAND Corporation (RAND)

RAND–1	Lessons Learned on Technology Transition from ACTDs to Formal Development Programs
RAND–2	Cost Estimates at Milestone B: A Comparison with Program Baselines
RAND–3	Estimating the Impact of Avionic System Complexity on Integration Costs
RAND–4	Why Has the Cost of Fixed-Wing Aircraft Risen?

RAND–5	Improving the Cost Estimation of Air Force Space Systems: Past Lessons and Future Recommendations
RAND–6	F-22A Multiyear Procurement Program
RAND–7	Assessing Management Alternatives for F-22 Sustainment
RAND–8	F-22A Post-Multiyear Procurement Options
RAND–9	Exploring the Sources of Weapons System Cost Growth
RAND–10	Contractor Logistics Support
RAND–11	Unmanned Air Vehicles Life Cycle Cost Estimating: Issues and Challenges
RAND–12	Analysis of Cost Growth using Selected Acquisition Reports
RAND–13	Guidelines and Metrics for Assessing Space System Cost Estimates
RAND–14	Implications and Implementation of OSD's Evolutionary Acquisition Strategy Relying on Spiral Development
RAND–15	Avionics and Mission Systems Cost Estimation Study
RAND–16	Aircraft Cost Estimating Sufficiency Review Handbook
RAND–17	Advanced Materials for Airframe: Price Trends, Industrial Base, and Affordability Initiatives

CNA Corporation (CNAC)

CNAC–1	Design-Build Concurrency: Cost Implications
CNAC–2	Reasons for Systemic Cost Underestimation
CNAC–3	O&S Cost Growth from AOA Estimates
CNAC–4	Quantifying Uncertainty of Predictions from Nonlinear Cost Estimation Relationships
CNAC–5	Cost and Industrial Base Implications of Capital Investments
CNAC–6	Early Warning Model for Acquisition Program Cost and Schedule Growth
CNAC–7	Information Markets for Acquisition
CNAC–8	eCASS Life-Cycle Cost
CNAC–9	Rebaselining Navy's Budget
CNAC–10	Annual Operating Plan

Institute for Defense Analyses (IDA)

IDA–1	Reliability Methodology for Cost and Effectiveness Analysis
IDA–2	Cost-Effective Aerial Targets
IDA–3	Cost-Effectiveness Analysis of Training
IDA–4	Business Plan for Training Modeling and Simulation
IDA–5	Mechanisms to Establish and Track Weapon System Sustainment Baselines
IDA–6	Assessment of Trade-offs between the Cost of Operational Unsuitability and RDT&E Cost
IDA–7	Contingency Operations Support Tool (COST)
IDA–8	Total Ownership Cost Reduction
IDA–9	Portfolio Optimization Feasibility Study
IDA–10	Analysis of Portfolio Risk Associated with Budgeting Space Programs
IDA–11	Profit Policy Research
IDA–12	KC-X Pricing Support
IDA–13	Analyzing the Affordability of ONR's Multifunction RF Technologies and Applications
IDA–14	Force and Infrastructure Studies
IDA–15	Detailed Earned Value Analysis
IDA–16	Program Level Earned Value Analysis

IDA–17	Industrial Base Research
IDA–18	Industry Restructure and Rationalization
IDA–19	Revision of CAIG Policy, Procedure, and Processes
IDA–20	Collection of O&S Data from Weapon System Support Contracts
IDA–21	Support to the OSD CAIG Analysis of NNSA Weapons Complex Modernization
IDA–22	Acquisition Data Consolidation
IDA–23	Upgrade IDA IMEASURE Model
IDA–24	Forecasting TRICARE Utilization and Costs
IDA–25	Evaluation of TRICARE Program Costs
IDA–26	Accession/Retention Trade-Offs
IDA–27	Cost Analysis Support to Taiwan Ministry of Defense
IDA–28	Resource Analysis Course for PA&E/Other Analysts
IDA–29	Cost Analysis Education
IDA–30	DoD Enlistment Early Warning System
IDA–31	Support to the Department of Veterans Affairs
IDA–32	Resource Analysis for T&E – CTEIP
IDA–33	Analytical Support for the Test and Evaluation Science and Technology (TEST) Program
IDA–34	Resource Analysis for Operational Test and Evaluation (OT&E)
IDA–35	Resource Analysis for Test and Evaluation Strategic Planning, Budget Certification and Range Policy for the DoD Test Resource Management Center (DTRMC)
IDA–36	Resource and Technical Analyses for the National Aeronautics RDT&E Infrastructure Plan
IDA–37	Resource and Technical Analyses for the National Aeronautics RDT&E Infrastructure Plan – NASA

B. KEYWORD ASSIGNMENTS

The summaries of ongoing and planned cost research studies that follow are grouped by office or organization (separated by tabs) in the order indicated by the list of study titles in the previous section. Each subsection contains a description of the office or organization (name, location, director,[1] size, etc.), followed by the summaries themselves.

At the end of each summary is a list of keywords assigned to that summary to describe its perspective, context, object, stage, focus, approach, and product. These keywords are used to tabulate the numbers in Table 3. The number at the intersection of a row (keyword) and column (office or organization) is the number of studies assigned that keyword.

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1 Though their actual titles vary, we refer to the heads of the offices/organizations as "directors."

Table 3. Keyword Assignments

	PA&E	DASA-CE	LCMC	TRAC-WSMR	NCCA	NAVAIR	NAVSEA	MCSC	AFCAA	SMC	ESC	NRO CAIG	AEROSPACE	MITRE	RAND	CNAC	IDA	Total
PERSPECTIVE																		
Industry	—	2	—	—	—	5	2	—	—	—	—	—	1	2	3	1	2	18
Government	24	11	3	1	8	9	1	3	15	7	2	18	2	1	16	10	36	167
CONTEXT																		
Estimating	—	9	3		5	10	2	3	10	7	2	2	2	—	9	5	9	78
Analysis	—	8	—	1	3	11	1	3	6	1	2	17	—	1	4	5	16	79
Reviewing/Monitoring	5	—	—	—	—	—	—	—	1	—	—	—	—	1	7	1	8	23
Policy	3	—	—	—	—	—	—	—	—	—	—	—	—	1	—	3	8	15
Programming	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	4	8
Budgeting	—	1	—	—	—	5	—	—	—	—	—	—	—	—	—	3	4	13
OBJECT																		
Forces	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	6
Weapon Systems	6	—	—	1	1	8	—	—	1	—	—	—	—	—	8	2	12	39
Aircraft	—	—	—	—	3	—	—	—	4	—	—	—	—	—	10	—	2	19
Helicopters	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Missiles	—	1	—	—	1	—	—	—	1	—	—	—	—	—	2	—	—	5
Ships	—	—	—	—	3	—	3	—	—	—	—	—	—	—	—	—	—	6
Land Vehicles	—	1	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
Space Systems	—	—	—	—	1	—	—	—	6	7	—	17	2	—	1	—	2	36
Airframe	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Propulsion	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	2
Electronics/Avionics	—	2	—	—	2	—	1	1	—	—	2	—	—	—	1	1	1	11
Spares/Logistics	2	1	—	—	—	1	—	—	2	—	—	—	—	—	—	1	1	8
Facilities	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	4
Infrastructure	4	1	—	—	—	—	—	—	1	—	—	—	—	1	—	—	10	17
Manpower/Personnel	1	1	—	—	—	1	—	—	—	—	—	—	—	—	—	1	7	11
STAGE																		
C&TD	—	4	—	—	—	3	—	1	—	—	—	—	—	—	—	—	1	9
SD&D	—	5	—	—	—	7	—	—	1	4	1	—	—	—	1	5	3	27
Production	—	5	—	—	1	5	—	—	2	3	—	—	1	—	1	4	3	25
Test and Evaluation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	7
Operations and Support	5	3	—	—	3	—	—	2	1	—	—	—	—	—	—	1	7	22
Retirement and Demilitarization	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Life Cycle	2	2	—	1	1	—	1	1	6	—	1	18	1	—	—	—	5	39

(Continued on the next page.)

Table 3—*Continued*

	PA&E	DASA-CE	LCMC	TRAC-WSMR	NCCA	NAVAIR	NAVSEA	MCSC	AFCAA	SMC	ESC	NASA	AEROSPACE	MITRE	RAND	CNAC	IDA	Total
FOCUS																		
Labor	—	4	—	—	—	7	—	—	1	—	1	—	—	—	—	—	2	15
Material	—	3	—	—	—	5	1	—	1	—	—	—	—	—	—	1	1	12
Overhead/Indirect	—	3	—	—	—	2	—	—	—	—	—	—	—	—	—	—	3	8
Engineering	—	3	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	5
Manufacturing	1	4	—	—	1	1	—	—	—	—	—	—	—	—	—	2	—	9
CPR/CCDR	1	4	—	—	—	1	1	—	—	—	1	—	—	—	—	—	3	11
WBS	1	3	—	—	1	1	2	—	1	2	—	—	1	—	—	—	1	13
Fixed Costs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Variable Costs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Production Rate	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	2
Acquisition Strategy	2	—	2	—	—	1	—	3	—	—	—	1	—	—	8	7	2	26
Automation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Advanced Technology	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	3
Risk/Uncertainty	—	—	1	—	2	—	1	3	—	1	—	—	—	—	2	3	3	16
Training	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	3	6
Readiness	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	5
Reliability	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	4
Sustainability	1	1	—	—	2	—	—	—	2	—	—	—	—	—	—	1	3	10
Integration	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Modification	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Security	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Environment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Schedule	—	—	—	—	2	1	2	—	—	—	—	—	—	—	—	1	—	6
Size	—	—	—	—	—	1	—	—	—	—	—	9	—	—	—	—	—	10
Software	—	1	—	—	2	2	1	—	3	1	1	2	—	2	—	—	—	15
APPROACH																		
Data Collection	5	9	—	—	4	10	1	—	6	3	—	14	2	—	4	3	6	67
Survey	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	2	2	6
Case Study	1	—	—	—	1	—	—	—	—	—	—	—	—	1	—	4	8	13
Mathematical Modeling	2	6	1	—	2	1	1	—	5	4	—	3	2	—	—	1	12	40
Economic Analysis	3	—	—	1	1	1	1	—	1	—	—	—	—	—	1	2	9	20
Cost/Production Function	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Time Series	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Statistics/Regression	—	2	—	—	2	—	—	—	3	3	1	—	1	—	—	2	—	14

(Continued on the next page.)

Table 3—*Continued*

	PA&E	DASA-CE	LCMC	TRAC-WSMR	NCCA	NAVAIR	NAVSEA	MCSC	AFCAA	SMC	ESC	NASA	AEROSPACE	MITRE	RAND	CNAC	IDA	Total
PRODUCT																		
Database	5	5	—	—	6	10	2	—	9	3	2	5	—	—	2	—	5	54
Review	1	—	—	—	—	—	—	3	—	—	—	—	—	1	1	3	6	15
Method	2	—	1	—	2	2	—	—	1	1	—	1	—	—	4	3	5	22
Mathematical Model	1	—	1	—	—	—	1	—	—	—	—	3	—	—	—	2	1	9
Computer Model	1	5	1	—	—	—	—	—	3	—	—	6	—	—	—	—	3	19
Expert System	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Cost Progress Curve	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
CER	—	2	—	—	3	3	1	—	—	2	1	4	2	—	2	2	—	22
Study	8	—	—	1	3	1	—	3	—	2	—	2	—	1	11	9	18	59

Office of the Secretary of Defense, Program Analysis and Evaluation (PA&E)

Name:	Office of the Deputy Director (Resource Analysis), Program Analysis and Evaluation
Address:	OSD(PA&E), 1800 Defense Pentagon, Washington, DC 20301-1800
Director:	Dr. Richard P. Burke, (703) 695-0721
Size:	Professional: 40 Support: 4 Consultants: 0 Subcontractors: 13
Focus:	Cost Analysis Improvement Group (CAIG); Life Cycle Costs of Major Defense Acquisition Programs; Force Structure; Operating and Support Costs; Economic Analysis
Activity:	CAIG reviews and studies per year: 55–60 POM, budget, FYDP reviews: As required

PA&E–1

Title: Major Defense Acquisition Program (MDAP), Cost Growth (CG) and Other Study Support

Summary: MDAP CG is defined as any variance from a baseline value after being normalized for quantity variation, inflation, and learning curve. Each variance is categorized as either a mistake or decision and is further refined into 10 subcategories. The source data for this study are Selected Acquisition Reports (SARs) which detail cost variation from a baseline. This funding request provides support to the Cost Analysis Improvement Group (CAIG) for the MDAP CG study. Contracted analysts will update the MS Access database with cost variance data as new SARs are released. CAIG analysts process the data with the support of contractors. To address production rate variation, the study will be expanded to include schedule-quantity data. The study is expected to provide insight into the magnitude of cost growth so the DoD can better manage its programs.

Classification: Unclassified

Sponsor: OSD(PA&E)
WSCAD
Mr. John McCrillis
(703) 697-8228
The Pentagon, Room BE798
Washington, DC 20301

Performer: AT&T

Resources:

FY	*Dollars*	*Staff-years*
2000	$215,000	
2001	$215,000	
2002	$211,000	
2003	$230,000	
2004	$250,000	
2005	$260,000	
2006	$250,000	
2007	$125,000	
2008	$ 75,000	

Schedule:

Start	*End*
Ongoing	

Database: *Title:* SAR Cost Growth Database
Description: Updated MS Access database with FY07 SAR data.

Publications: To be determined

Keywords: Government, Reviewing/Monitoring, Weapon Systems, Life Cycle, Data Collection, Database

PA&E–2

Title: CAIG Database Development

Summary: The CAIG has a requirement to streamline operations by limiting the amount of time the CAIG analyst must spend on data collection and maximizing the amount of time analysts spend actually conducting cost analyses. In order to do this, CAIG analysts must have access to comprehensive sources of well-organized data. The CAIG collects significant amounts of data as a by-product of independent cost analyses and special studies. Analysts retain a small fraction of these data to assist in future analyses, but the vast majority are not retained, despite their future potential in supporting future analyses. CAIG workload is such that analysts are unable to devote time to organizing these data in a manner to facilitate subsequent retrieval. Accordingly, much time is invested re-creating data files which may have been developed previously, but were not retained in a manner to facilitate subsequent analysis. The database development effort would involve on-site and off-site support. At least one data analyst would be co-located in CAIG spaces, to work with CAIG analysts in collecting, organizing, maintaining, retrieving, and presenting data in a manner to facilitate subsequent analysis.

Classification: Unclassified

Sponsors: OSD(PA&E)
WSCAD/OAPPD
The Pentagon, Room BE779
Washington, DC 20301

Performer: TBD

Resources:

FY	*Dollars*	*Staff-years*
2004	$250,000	
2005	$150,000	
2006	$150,000	
2007	$410,000	
2008	$150,000	

Schedule:

Start	*End*
May 2004	Ongoing

Database: Data book and collection of electronic files if available. Limited narrative reports outlining the contents of the data book and future data points targeted for collection in the near future.

Publications: None

Keywords: Government, Estimating, Analysis, Weapon Systems, Acquisition Strategy, Data Collection, Database

PA&E–3

Title: Force and Infrastructure Studies

Summary: This work program aims at providing more informed analyses for senior Department decision makers through advanced analyses of the Department's Future Years Defense Program and force and infrastructure categories (F&ICs). OSD/PA&E/RA/FICAD requires tools that facilitate analyses of resource allocations in support of forces and infrastructure. For example, the FYDP must be normalized to ensure that funds and manpower values found in a program element in Fiscal Year 1975 and forward use the same definitions used in the current budget year. Taxonomies used to relate program elements to missions and infrastructure categories require periodic review and updating. Additionally, FICAD is periodically asked to conduct special, short-deadline studies for senior leadership on a wide variety of subjects requiring analysis of the FYDP. The effort will include a detailed analysis of the effects of decisions and policies made during the current budget year on past years. The project will update, redefine or adjust the F&ICs to reflect decisions and guidance stemming from the QDR. Other research will be conducted using the FYDP database as required.

Classification: Unclassified work dealing with a classified database

Sponsor: OSD(PA&E)
FICAD
Mr. Walter Cooper
(703) 697-4312
The Pentagon, Room BE798
Washington, DC 20301

Performer: IDA

Resources:

FY	*Dollars*	*Staff-years*
1992	$40,000	
1993	$220,000	
1995	$130,000	
1996	$150,000	
1999	$250,000	
1900	$322,000	
2002	$80,000	
2003	$200,000	
2004	$150,000	
2005	$150,000	
2006	$100,000	
2007	$100,000	
2008	$100,000	
Ongoing		

Database: The set of rules by which the FYDP, as of the FY 2008 President's Budget, is to be normalized. This will be used in preparation of the next Annual Defense Report. An update of the F&ICs. Other deliverables as required.

Keywords: Government, Programming, Forces, Infrastructure, Operations and Support, Study

PA&E–4

Title: Defense Cost and Resource Center (DCARC)

Summary: The OSD Cost Analysis Improvement Group (CAIG) maintains an integrated cost research program to improve the technical capabilities of the Defense Department to estimate the costs of major equipment. The CAIG works with DoD components to determine relevant costs, collect and make available related actual costs, and develop techniques for projecting them. An important part of the CAIG charter is to develop and implement policy to provide for the appropriate collection, storage, and exchange of information concerning improved cost estimating procedures, methodologies, and data necessary for cost estimating.

This project will develop and maintain an Internet-based, secure document and data retrieval system that incorporates Cost and Software Data Reporting (CSDR), cost research libraries, system performance data, and other cost-related data systems. Access to the system will be available to authorized users through the World Wide Web. The project will maintain and update software, provide a user-friendly, common search functionality for both electronic data and electronically stored documents, provide help desk support, scan documents into the system, develop both classroom and computer-based training programs for use of and access to the data, and continue its ongoing assessment of user needs and system streamlining requirements. The DCARC will also assist acquisition program offices in developing data collection plans, make assessments of and recommend changes to DoD policy affecting cost data collection, and develop a data availability assessment tool to assist cost estimators in using cost data for estimating purposes.

Classification: Unclassified

Sponsor: OSD(PA&E)
WSCAD/DCARC
Dr. Ron Lile
(703) 601-4850
Suite 220, CGN
Arlington, VA

Performer: IDA, Technomics, Tecolote
Jack Cloos (IDA), (703) 845-2506

Resources:

FY	*Dollars*	*Staff-years*
2002	$1,800,000	
2003	$2,385,000	
2004	$2,000,000	
2005	$2,000,000	
2006	$2,000,000	
2007	$2,000,000	
2008	$2,000,000	

Schedule:

Start	*End*
Oct 1996	Ongoing

Database: Not applicable

Publications: The automated cost information management software, help desk support, classroom and computer-based training, website interfaces, cost data availability assessments, briefing presentations and written analyses and recommendations, documents, and tools are the deliverable products.

Keywords: Government, Estimating, Training, Data Collection, Study

PA&E–5

Title: USMA Special Studies to Support EMAD/FICAD Analysis

Summary: The current EMAD/FICAD analysts typically are limited in their analyses to a very narrow focus because of workload and time constraints. In many cases this is not an issue, but in some, the value of the analysis is limited by this focus. This task will allow the incorporation of outside experts to provide broader analysis to incorporate into the analysts' final products. The goal of this task is to enhance the productivity and efficiency of analysts by performing analysis that feeds into ongoing EMAD/FICAD projects. EMAD/FICAD will continue their relation with the United States Military Academy and potentially establish relations with the other service academies to tap their pool of economic and manpower experts. On a project-by-project basis, the designated lead analyst will identify specific program data, information, and analysis needed to support his or her review. When appropriate, a task will be generated for necessary support.

Classification: Unclassified

Sponsor: OSD(PA&E)
EMAD/FICAD
The Pentagon, Room BE798
Washington, DC 20301

Performer: USMA

Resources:

FY	*Dollars*	*Staff-years*
2003	$20,000	
2004	$25,000	
2005	$25,000	
2006	$25,000	
2007	$5,000	
2008	$10,000	

Schedule:

Start	*End*
Ongoing	

Database: Interim and final reports, computer spreadsheets, models, etc., as appropriate.

Publications: None

Keywords: Government, Economic Analysis

PA&E–6

Title: Global Defense Posture: Forward Operating Site/Cooperative Security Location Cost Model (CC-339K)

Summary: This study establishes the capability to support the Secretary of Defense's Integrated Global Presence and Basing Strategy initiative by providing rough order of magnitude estimate to stand up and operate Forward Operating Sites and Cooperative Security Locations. The approach uses the proof of principle prototype model previously developed, based on user feedback on the prototype, adds additional force structure templates to model more generic units likely to use a FOS/CSL, increases the movement options for the forces rotating to and from a FOS/CSL, and updates the cost factors used in the prototype to produce a mature version of a FOS/CSL cost model. This phase will test the model.

Classification: Unclassified

Sponsor: OSD(PA&E)
FICAD
COL Doug Hersh
(703) 697-0221
The Pentagon, Room BE798
Washington, DC 20301

Co-Sponsors: Policy, AT&L

Performer: R&K Engineering

Resources:

FY	*Dollars*	*Staff-years*
2006	$29,000	
2007	$30,000	
2008	$35,000	

Schedule:

Start	*End*
Ongoing	

Database: Contractor will provide a computer model that operates in MS Windows, source code for the model, a user's manual, and the detailed technical manual of the model documenting all cost factors, force structure templates, facility templates, algorithms, and operations of the model.

Publications: None

Keywords: Government, Analysis, Facilities, Computer Model

PA&E–7

Title: O&M Program Balance and Cost Related Drivers

Summary: The aim of this effort is to produce a suite of forecasting tools to determine how much O&M funding is reasonable to allocate among the eight mutually exclusive, yet exhaustive, program category bins that account for all O&M funding: OPTMEPO, Depot Maintenance, Installations Support, Mobilization and Preparedness, School Housing Training and Recruiting, Logistics Operations and Technical Support, Administration/ Personnel/Headquarters Support, and Miscellaneous. Prior year efforts have produced a naïve set of first generation forecasting models for all eight categories, but in general the confidence in these tools in insufficient to actively support senior leadership resource decision making. Tools and techniques will be developed for analysis of budgeted and programmed O&M resources for OTEMPO. In this follow-on research, the study team will identify other factors likely to influence the need for O&M OPTEMPO resources. The study team will identify these candidate factors through on-site visits with cognizant commands and headquarters staff elements. Once candidate factors have been identified, the team will conduct necessary statistical analyses to quantify the contributions of these factors and forecast the need for OPTEMPO O&M funding.

Classification: Unclassified

Sponsor: OSD(PA&E)
FICAD

CDR Joe Illar
(703) 697-6393
The Pentagon, Room BE798
Washington, DC 20301

Performer: To be determined

Resources:

FY	*Dollars*	*Staff-years*
2000	$230,000	
2001	$200,000	
2002	$350,000	
2003	$150,000	
2004	$100,000	
2005	$185,000	
2006	$190,000	
2007	$200,000	
2008	$134,000	

Schedule:

Start	*End*
Ongoing	

Database: The selected vendor will provide computer-based tools for independent review and analysis of O&M resources. These products are to be furnished in time for use in assessment of Program Objective Memoranda FY 2010–2015, scheduled for fall 2008.

Publications: None

Keywords: Government, Programming, Operations and Support, Mathematical Model

PA&E–8

Title: QDR: Medical Readiness Review (CC-300K)

Summary: This study will complete the Medical Readiness Review (MRR) by: (1) developing cost estimates for the military-to-civilian conversions; (2) preparing and publishing a final report; and (3) finalizing the new medical planning requirements for the software development process that is beginning. (1) The MRR is nearing completion of its medical sizing work. This will identify end strength for possible military-to-civilian conversion. The next step is estimating the net cost of the conversions. In past efforts PA&E has done a high level estimate of these costs using national average prices and left more refined, regional analysis to the Services during execution. The current version of the National Defense Authorization Act requires a much more detailed cost analysis up front, including geographic market based assessments of civilian costs and availability. This study will provide that cost analysis. (2) Much of the MRR work is nearing completion. The MRR has been a major study of medical capability and force structure. It has defined new methods for analyzing problems which are expected to become standard modeling methods for POM development and submission. It is also developing pilot project recommendations that may be implemented over the next few years. To ensure Department-wide understanding and adoption of these new standards and pilot projects, the MRR analysis and results need to be professionally compiled and published. (3) The MRR has developed an extensive array of requirements for the next generation of medical planning processes and software applications. One aspect of these requirements is not yet complete—the transformation of the underlying clinical data from the historic levels of care framework to the capabilities-based taxonomy of care developed in the MRR. Working out this shift in data structure is the last remaining task in defining the requirements for the future medical planning tools.

Classification: Unclassified

Sponsor: OSD(PA&E)
EMAD
LCDR Luis Asqueri
(703) 692-8044
The Pentagon, Room BE798
Washington, DC 20301

Co-Sponsor: OUSD(P&R)

Performer: IDA, TBD

Resources:

FY	*Dollars*	*Staff-years*
2004	$500,000	
2005	$250,000	
2006	$250,000	
2007	$100,000	
2008	$100,000 (PA&E share)	

Schedule:

Start	*End*
Nov 2003	Ongoing

Database: (1) Complete cost estimates of military-to-civilian conversions by geographic market (including OCONUS) and estimates of civilian personnel availability by market.

(2) Professionally compiled and published report (classified and unclassified versions) of the MRR work.

(3) Final requirements determination for use in Request for Proposal (RFP) release and contract development for next generation of medical planning software. Data structure template to be provided to the Defense Medical Standardization Board (DMSB).

Publications: None

Keywords: Government, Reviewing/Monitoring, Infrastructure, Study

PA&E–9

Title: Collection of O&S Data from Weapon System Support Contracts

Summary: This task, sponsored jointly by OSD(PA&E) and USD(AT&L), involved research concerning operating and support (O&S) cost and performance data collection for weapon systems placed under a Performance Based Logistics (PBL) arrangement or other form of Contractor Logistics Support (CLS). Currently, there is very limited capability to collect such data when systems are sustained through contractor support. The purpose of this project was to assess the utility and feasibility of collecting such data without imposing undue burdens on contractors or program offices. The project team completed its review of eleven current weapon systems with significant contractor support that were used as case studies. Numerous on-site visits were held with the appropriate program offices. We supported our sponsor in hosting a series of Integrated Product Team meetings with representatives from OSD and the military service cost centers; the IPT was used to resolve issues and reach consensus on key issues concerning cost reporting for sustainment contracts. Key issues included the frequency of cost reporting, the appropriate level of detail, dollar threshold, and the need to establish cost reporting for firm fixed price contracts. We supported a project status briefing to a conference of the National Defense Industrial Association; the association was the primary source of feedback from defense contractors. We provided the sponsor with our recommended changes to DoD instructions and manuals to formalize collection of cost and performance data from sustainment contracts. We provided overarching guidance to program offices and contractors; this document was prepared in a format suitable as a new chapter in DoD 5000.04-M-1, “Cost and Software Data Reporting Manual.” We developed a program Work Breakdown Structure (WBS) for sustainment with terms and definitions; this document was prepared in a format suitable as a new appendix in DoD Military Handbook MIL-HDBK-881A, “Work Breakdown Structure for Defense Materiel Items.” We also completed the development of our proposed report formats that would be placed on sustainment contracts to obtain data in a way similar to how DoD now collects data from acquisition development and procurement contracts. We also

developed preparation instructions (i.e., Data Item Descriptions) for each of the report formats. Two of the report formats collect cost data, where a more detailed report is used for higher dollar value contracts, and a more aggregate report is used for lower dollar value contracts. Another proposed report format collects data on contract performance, productivity, and workload. The sponsor intends to validate our proposed documents and report formats through a series of pilot programs in 2008 and 2009. Candidates include F-22, JSTARS, Stryker, Shadow UAV, and T-45.

Classification: Unclassified

Sponsor: OSD(PA&E)/RA and USD(AT&L)/L&MR

Performer: IDA

Resources:

FY	*Dollars*	*Staff-years*
2007	$300,000	1.3
2008	$125,000	

Schedule:

Start	*End*
Aug 2006	Ongoing

Database: None

Publications: Final Report

Keywords: Government, Analysis, Reviewing/Monitoring, Weapon Systems, Spares/Logistics, Operations and Support, CPR/CCDR, WBS, Readiness, Sustainability, Case Study, Method, Study

PA&E–10

Title: Resource Analysis Course for PA&E/Other Analysts

Summary: This project provides a 4 day course for newly assigned PA&E and CAIG analysts and selected resource and cost analysts from the OSD/Joint/Service staffs and Service/MDA Cost Agencies. Newly assigned PA&E, CAIG and other staff analysts often take 12–18 months before fully understanding how to prepare, coordinate and integrate a thorough program or cost analysis for key program events (e.g., Milestones A, B or C, DAE review, AoA, etc.). In this four-day course the analyst is exposed to, as a minimum, the following areas: PPBES, FYDP, requirements process, work breakdown structure(s), cost estimating relationships (CERs), learning curves, inflation indices, CSDR and FYDP databases, intricacies of DoD 5000 and CJCS 3170 guidance, Earned Value, Cost Performance Reports, schedule variance, beta/Raleigh distributions for schedule overruns, effectiveness analysis, and risk analysis. This course would ensure the PA&E, CAIG and staff analysts are exposed to the essentials of building a program assessment/cost estimate shortly after being assigned to their respective organization.

Classification: Unclassified

Sponsor: OSD(PA&E)/RA
Dr. Ron Lile
(703) 695-2612
The Pentagon, Room BE779
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2002	$100,000	
2003	$117,773	
2004	$ 75,000	
2005	$135,737	
2006	$155,000	
2007	$155,000	
2008	$155,000	

Schedule:

Start	*End*
Jun 2002	Indefinite

Database: None

Publications: Training notebooks/CD

Keywords: Government, Analysis, Training, Review

PA&E–11

Title: IDA Cost Research Workshop

Summary: IDA conducts a cost research workshop to facilitate the exchange of information on cost research that is in progress and planned, thereby avoiding wasteful duplication of effort and providing for more informed research planning decisions by participating offices. The Chairman, OSD CAIG, cosponsors this workshop.

Classification: Unclassified

Sponsor: IDA Central Research Program
OSD(PA&E)
Dr. Ron Lile
(703) 695-2612
The Pentagon, Room BE779
Washington, DC 20301

Performer: IDA

Resources:

FY	*Dollars*	*Staff-years*
2000	$30,000 (PA&E share)	
2001	$30,000 (PA&E share)	
2002	$30,000 (PA&E share)	
2003	$30,000 (PA&E share)	
2004	$30,000 (PA&E share)	
2005	$35,000 (PA&E share)	
2006	$35,000 (PA&E share)	
2007	$35,000(PA&E share)	
2008	$40,000 (PA&E share)	

Schedule:

Start	*End*
Oct 2005	Ongoing

Database:

Title:	DoD Cost Research Projects
Description:	Summary descriptions of cost research projects (an example is this description)
Automation:	Workshop and catalog available on the Internet

Publications: IDA Document D-3571, "The 2008 IDA Cost Research Workshop: Contractor Data Reporting Systems," August 2008.

Keywords: Government, Reviewing/Monitoring, Forces, Weapon Systems, Life Cycle, Data Collection, Database

PA&E–12

Title: Revision of CAIG Policy, Procedure, and Processes

Summary: The objective of this project is for IDA to assist the Cost Analysis Improvement Group (CAIG) in revising its issuances (directives and manuals) and publications (guides and pamphlets), many of which were quite old and needed to be updated to conform to the latest DoD acquisition regulations. Since 2004, IDA has assisted with updates to the revised CAIG directive (DoD Directive 5000.04), the CAIG Operating and Support (O&S) Cost-Estimating Guide, and the Cost and Software Data Reporting (CSDR) Manual (DoD Manual 5000.04-M-1). In addition, IDA provided the CAIG with two chapters of the AT&L Defense Acquisition Guidebook that concern cost estimation, affordability, and related topics. In 2007, IDA supported the CAIG and the military service cost centers in conducting a study of the DoD cost estimation process for major defense acquisition programs at major milestone reviews. The study was requested by USD(AT&L) in response to a Defense Science Board review concerning streamlining the oversight of acquisition programs. The objective of the CAIG-led study was to improve DoD's ability to estimate costs both objectively and realistically, while examining ways to reduce complexity and cost-estimating cycle time. The study results were briefed to AT&L/ARA on September 7. The major findings in the study address (1) reengineering of the Cost Analysis Requirements Description, (2) timing and synchronization between the Defense Acquisition Board process and the service source selection process, (3) availability and quality of data for cost estimation, (4) improved communication among the program offices, service cost centers, and the CAIG, and (5) the role of the service cost centers in reviews of major programs where the independent cost estimate is prepared by the CAIG. For 2008, the main focus will be to update the DoD Cost Analysis Guidance and Procedures Manual (DoD 5000.04-M). This manual provides guidance concerning (1) CAIG review procedures and process, (2) preparation of the Cost Analysis Requirements Description, and (3) Visibility and Management of O&S Costs (VAMOSC) data collection systems. The manual also provides standard terms and definitions for cost estimating, and explains their use in cost reporting, budgeting, and life-cycle cost estimates presented to the CAIG. IDA will continue to review and help maintain the CAIG's issuances and publications as needed, including assessing the updates needed due to any major revisions of DoD acquisition policies, such as the new emphasis on the concept decision process, portfolio management, time-defined acquisition, or other initiatives.

Classification: Unclassified

Sponsor: OSD(PA&E)/RA

Performer: IDA

Resources:

FY	*Dollars*	*Staff-years*
2004	$250,000	1.1
2005	$300,000	1.3
2006	$300,000	1.3
2007	$300,000	1.3
2008	$250,000	1.1

Schedule:

Start	*End*
Aug 2003	Dec 2008

Database: None

Publications: Preparation and/or updates of directives, instructions, manuals, handbooks and guidebooks.

Keywords: Government, Policy, Weapon Systems, Life Cycle

PA&E–13

Title: Defense Agency Performance Plans Course

Summary: Emphasis on performance management continues to grow across government and within the Department of Defense. PA&E requests funding to sponsor a three-day course of instruction entitled, "Performance Management and Defense Agency Performance Plans." The course will be designed for action officers within the defense agencies, the OSD staff, the military departments, and the joint staff that have been and/or will be involved in writing or reviewing the performance plans for the agencies. As with previous iterations, the course will examine methods of writing performance plans for the agencies and activities in the Department of Defense and give participants a greater understanding of the benefits and processes of measuring performance. Course content will include discussion of performance plan efforts to date, economics and finance of internal markets, workload measurement, budgets and costs, customer surveys, benchmarking, and many other current issues related to performance management. The course will be discussion-oriented and include analysis of case studies. Most recently, the transition from Performance Contracts to Performance Plans/Balanced Scorecards has taken place and this course provides basic performance management theory in this area. The Defense Resources Management Institute (DRMI), at the request of and in conjunction with the Director, Program Analysis and Evaluation (D,PA&E), has previously developed and delivered three-day courses. Due to recent management initiatives within the Department of Defense, DRMI has rewritten the course to incorporate changes, including all relevant Management Initiative Decisions (MIDs), especially MID 901 (Risk Management Framework and Balanced Scorecard), recent changes in the use of the contracts within the DoD and any other relevant changes.

Classification: Unclassified

Sponsor: OSD(PA&E)
FICAD
Ms. Lisa Davis
(703) 693-8049
The Pentagon, Room BE798
Washington, DC 20301

Performer: DRMI

Resources:

FY	*Dollars*	*Staff-years*
2005	$15,000	
2006	$15,000	
2007	$16,000	
2008	$16,000	

Schedule:

Start	*End*
May 2005	Ongoing

Database: None

Publications: (1) Course syllabus, including course schedule
(2) List of reading assignments
(3) Slide packages for each lecture
(4) Case studies as relevant

Keywords: Government, Policy, Training

PA&E–14

Title: Medical Cost Growth

Summary: RA/EMAD has two significant contracted efforts under way examining medical benefits and cost growth. Work under way at RAND is developing an aggregate costing model to evaluate the impact of alternative benefit designs on beneficiary out of pocket cost, recruitment, retention, and DoD costs. Work under way at IDA is developing a detailed costing model to project Program Element level DoD costs through the program under status quo and, in a limited fashion, alternative benefit designs. Much of this work will be completed by late fall leaving the Department with cost growth projections and benefit reform alternatives that are higher quality than were available in previous program review cycles. Additional work required on this issue includes: (1) Reserve health benefits; (2) administration of the benefit and potential gains from privatizing or transferring to FEHBP the current TMA function; and (3) continued refinement of benefit reform proposals.) The study will: (1)identify costs of current Reserve health benefit expansion proposal in Congress. Propose alternatives and develop cost estimates for these alternatives. (2) Examine the administration of the medical benefit and propose alternatives for privatizing this. Develop estimates of cost savings and specific privatization alternatives with implementation mechanisms. Develop options for internal DoD reforms to place benefit costs into MILPERS appropriation, move to accrual funding of under-65 retiree benefit, and shift operational control to compensation organizations, e.g., G1. (3) Merge the work of RAND and IDA to develop a comprehensive cost, recruitment, and retention model that is able to project program element level information through the program. Take RAND benefit reform proposals and develop specific implementation strategies for them.

Classification: Unclassified

Sponsor: OSD(PA&E)
EMAD
Dr. Ching-Mei Chen
(703) 692-8045
The Pentagon, Room BE798
Washington, DC 20301

Performer: IDA, RAND, TBD

Resources:

FY	*Dollars*	*Staff-years*
2005	$466,000	
2006	$219,000	
2007	$400,000	
2008	$295,000	

Schedule:

Start	*End*
Feb 2006	Ongoing

Database: None

Publications: (1) Cost estimates and proposals of alternatives for Reserve benefits for PB09 development
(2) Pilot project proposals for PB09 implementation
(3) Benefit reform proposals for PB09 implementation.

Keywords: Government, Infrastructure, Review, Study

PA&E–15

Title: KC-X Pricing Support (CC-225K)

Summary: The primary purpose of this project is to provide improved information on the price of the KC-767 and A330-200 aircraft for use in consideration of DoD lease and buy alternatives for recapitalizing the aerial refueling tanker fleet. Tanker aerial refueling is a critical support mission for battlefield commanders, assisting in achieving air superiority through refueling of fighter, bomber, and jammer aircraft, thereby enabling extended coverage of the battle space by both ground support and ISR aircraft. However, the tanker fleet is aging, particularly the KC-135E aircraft, which are approaching 40 years old. Some modernization has occurred with conversion of a quantity of KC-135Es to KC-135Rs and purchase of KC-10s. However, the remaining KC-135Es need to be upgraded or replaced. Studies have also shown a higher demand than the current fleet can sustain in a protracted wartime scenario. A proposal has been made by Boeing to the USAF to lease 100 KC-767 aircraft for 6 years. The DoD could also procure KC-767 aircraft instead of pursuing a lease. Both the lease and purchase options provide realistic recapitalization alternatives for the aging aerial tanker fleet. The KC-767 procurement, whether by lease or purchase, is for a commercial derivative aircraft. Costing commercial aircraft requires consultation with commercial industry experts. The aircraft manufacturing industry is reluctant to release cost information on commercial aircraft to the government. Industry consultants, however, are in a special position to observe and interpret the costs of commercial aircraft and modifications to them. Boeing and the USAF have negotiated a proposed lease contract for KC-767A aircraft, including specified lease payments. The DoD is also considering the costs of procuring KC-767A aircraft, in accordance with normal practice, instead of leasing. The price of purchasing is a key determinant in assessing the merits of the proposed lease and procurement alternatives. The price of KC-767 aircraft to DoD will depend upon market conditions for commercial aircraft, costs of planned aircraft modifications to meet DoD aerial refueling and other DoD mission requirements, as well as other factors. The price of purchasing a KC-767 aircraft has been subject to considerable debate within the DoD and other government agencies. IDA will undertake the following tasks to accomplish this objective: a. Determine options to be examined through discussions with the sponsor. At a minimum the purchase price of new B767-200C aircraft and the price of modifications to make it a KC-767A will be examined. b. Collect data and information about options. The sponsor will provide access to USAF and commercial sector sources. IDA will obtain support from consulting organizations and individuals as needed. c. In discussions with the sponsor select names of people to form a “graybeard” panel to review progress and results. Enlist the services of selected personnel to the extent possible. d. Examine options and identify the lowest cost alternative to the sponsor. Results will be presented in constant FY2008 dollars and Then Year Dollars. e. Document results in the form of a briefing and a final report. Contracting: (As of 28 Aug.) AFCAA is considering co-sponsoring; ARA is considering cross-cutting funding.

Classification: Unclassified

Sponsor: OSD(PA&E)
WSCAD
Action Officer, TBD
The Pentagon, Room BE798
Washington, DC 20301

Performer: IDA

Resources:

FY	*Dollars*	*Staff-years*
2008	$75,000 (PA&E share)	

Schedule: *Start* *End*

Oct 2007

Database:

Publications: IDA will deliver a progress briefing on or before 1 November 2007. The schedule for additional briefings and a final written report will be determined at a later date. Progress will be reported semi-monthly at a minimum or at the request of the sponsor.

Keywords: Government, Estimating, Aircraft

PA&E–16

Title: Economic and Manpower Forecasting Models

Summary: Provides funding for: Defense Employment and Purchases Projection System (DEPPS) and Macroeconomic and Cost Data (from Global Insight, Inc.). DEPPS funding provides access to DEPPS model created and updated by INFORUM, data maintenance, and model documentation. Pays for subscriptions and gains access to macroeconomic models necessary to support DEPPS process and various defense studies. Macroeconomic and Cost Data funding pays for subscriptions and gains access to macroeconomic forecasts and full cost information service from Global Insight, Inc., to support various defense studies including Medical Readiness Review (MRR) and cost analyses for the CAIG. DEPPS saves an enormous amount of PA&E time answering questions by providing an employment and purchasing projection of the FYDP in an unclassified, cleared-for-public-release format that is divisible by state and industry. The annual report is furnished to each member of the Senate and to each member of the House Armed Services Committee. The report is also posted to a publicly accessible website and is used by academics, state governments, and industry associations. In addition, the effort includes the cost of essential data to support DEPPS. Macroeconomic and Cost Data: This data forecasts economic and cost growth by industry. These forecasts will provide better insights into anticipated effects on major weapon system acquisitions and are valuable to the CAIG and support PA&E's charter to advise the Secretary of Defense on the effects of defense spending on the U.S. economy. DEPPS: Using INFORUM's input/output models, (e.g., LIFT and Iliad), DoD's outlay and translator data are used to obtain purchases (direct and indirect) and employment by state and industry. This funding request includes subscriptions to INFORUM's models and their labor, and Global Insight's macroeconomic models, data, forecasts, and full cost information service.

Classification: Unclassified

Sponsor: OSD(PA&E)
EMAD
Dr. Soyong Chong
(703) 614-3840
The Pentagon, Room BE779
Washington, DC 20301

Performer: TBD

Resources:

FY	*Dollars*	*Staff-years*
2008	$205,000	

Schedule: *Start* *End*

Sep 2008

Database: DEPPS: Hard copies and electronic files containing projections of defense purchases and employment by industry and state. Periodic meetings and INFORUM's expertise required during the process. Macroeconomic and Cost Data: Hard copies and electronic files containing the forecasts periodically. Admissions to World and U.S. economic outlook conferences.

Publications:

Keywords: Government, Economic Analysis, Manpower/Personnel

PA&E–17

Title: DCARC CLS and PBL Data Collection

Summary: Operations and support (O&S) efforts previously performed by the government have transitioned to contractors in recent years. These efforts can account for a significant portion of a program's cost. The Services have been forwarding Cost and Software Data Reporting (CSDR) Plans containing Contractor Logistics Support (CLS) and Performance Based Logistics (PBL) efforts. The DCARC has not participated in developing the contract specific requirements because there is no standard. In order to better understand these costs for cost estimating purposes, these costs must be collected in a comprehensive and understandable format. The approach to collecting historical CLS cost data will be to integrate CLS data collection into the current Contractor Cost Data Reporting (CCDR) process. The contractor will identify additions/edits required in the training material needed to incorporate CLS data reporting, screen new MDAP contracts for CLS activities, coordinate CSDR planning to ensure CLS is covered, and verify/validate CLS reporting. The contractor will also coordinate with the current Collection of O&S Data from Contractor Weapon System Support Contracts cross cutting study by identifying additions/edits required in existing guidance (CSDR manual, DIDs, etc.) needed to incorporate CLS data collection and coordinating changes with government (CAIG, Service Cost Groups, SYSCOMs, etc.) and industry.

Classification: Unclassified

Sponsor: OSD(PA&E)
DCARC
Dr. Ronald Lile
(703) 601-4850
Suite 220, CGN
Arlington, VA

Performer: Technomics

Resources:

FY	*Dollars*	*Staff-years*
2008	$125,000	

Schedule:

Start	*End*
Oct 2007	

Database: New training material integrated into the existing CSDR classroom training package; CSDR plans reflecting CLS data collection requirements; Verification/Validation reports reflecting CLS data reporting CLS data planning and collection requirements delivered to C/PET developer; and, Updated guidance reflecting the agreed upon approach to CLS cost data collection.

Publications:

Keywords: Government, Reviewing/Monitoring, Spares/Logistics, Database

PA&E–18

Title: Manpower Cost Modeling (CC-600K)

Summary: The Department is continually improving its analyses to support manpower management and workforce mix decisions. Because of the high number of military medical conversions, medical personnel have been a focus of the Department's most recent and detailed cost analysis. This guidance describes the cost factors and methodology to be used to estimate the fully-burdened costs of medical personnel. The manpower cost factors in this analytical model include: short-term fixed costs, short-term variable costs, and the deferred pay-as-you-go costs. These costs are also distinguished by those borne by the DoD and by non-DoD agencies. This analytic approach can be used when making decisions as to whether it is economically advantageous to use military, DoD civilian, or contract support to perform any Defense function. This includes decisions on the economic advantages of converting from one source of support (military, DoD civilian, or contract) to another required by Section 129a of Title 10, U.S.C., and decisions on the appropriate workforce mix for Defense acquisition programs. This type of economic analysis should not be used to determine manpower costs for program/budget submissions.

Classification: Unclassified

Co-Sponsor: OSD(P&R)

Sponsor: OSD(PA&E)
EMAD
Dr. Ching-Mei Chen
(703) 692-8054
The Pentagon, Room BE779
Washington, DC 20301

Performer: TBD

Resources:

FY	*Dollars*	*Staff-years*
2008	$200,000	

Schedule:

Start	*End*
Nov 2007	

Database: A web-based software application that computes the fully-burdened manpower costs of DoD personnel. A document that designates the "Owner" of model and the responsibilities of ownership. A set of business rules that describes the analytical model, and guidance on when and by whom this model should be used.

Publications:

Keywords: Government, Analysis, Manpower/Personnel, Economic Analysis

PA&E–19

Title: O&S Analytical Services

Summary: FICAD routinely conducts a number of projects throughout the year that require quantitative analyses of large, complex programs related to O&S. This includes analysis to support facilities metric development and refinements. It also includes work to establish and maintain strong linkages between data routinely collected in PPBE data systems such as PRCP and SDCS and the metrics in use and under development to assist senior management with resource allocation decisions. The contractor will maintain and enhance a repository of related data, normalizing and conducting verification and validation of the data where appropriate. The contractor will provide technical support to

periodically update SAG and F&IC assignments. The contractor will maintain and adapt the overall repository design including database structures, relationships, standards, and naming conventions. The contractor will update and automate PPBE, investment, force and infrastructure, discretionary funding, and O&M Program Balance business rules. As directed by the task monitor, the contractor will check DPD warehouse displays to determine if they are produced as specified in the related business rules for creating the displays. The contractor will maintain and update the Facilities metric business rules used to support senior management's use of those metrics. The contractor will also administer the Facilities Data Quality Assurance Website.

Classification: Unclassified

Sponsor: OSD(PA&E)
FICAD
COL Douglas Hersh
(703) 697-0221
The Pentagon, Room BE798
Washington, DC 20301

Performer: SAIC

Resources:

FY	*Dollars*	*Staff-years*
2008	$100,000	

Schedule:

Start	*End*
Aug 2008	

Database:

Publications: Periodic briefings, written business rules in hard copy for turning raw PPBE data into useful/functional aligned information, a written standard operating procedure for updating business rules and performing quality checks on displays posted at the DPD warehouse, and various other products as directed by the task monitor. All written documents will be submitted in both hard copy and in an appropriate electronic media, such as MS Word files.

Keywords: Government, Facilities; Infrastructure; Operations and Support, Database

PA&E–20

Title: Base Realignment and Closure (BRAC) 2005 Joint Basing Implementation (CC-$1,050K)

Summary: The Department currently allocates about $21B in year to installations support and environmental services, but lacks Department-wide models and metrics to support the PPBES process. This effort provides the tools to support the implementation of joint basing by providing common output levels for installations services. This effort will apply previous Common Output Level Standards (COLS) and Common Delivery of Installation Support (CDIS) work using the 12 Joint Basing locations as pilot locations. It will provide senior leadership with guidance, models and metrics, and integration activities to enhance joint basing implementation and to make better-informed resource allocation decisions, as well as justify and defend the need for these resources to the Office of Management and Budget and the Congress. Joint Basing Implementation leverages previous Common Delivery of Installation Support (CDIS) and Common Output Level Standards (COLS) efforts. CDIS is an overarching framework that will create a common language for all Components and OSD to follow. In order to obtain an optimal result, COLS must be developed to provide a common framework for all DoD Components. This methodology will produce an end-state consolidation that reduces duplicity, provides efficient services, illustrates costs, and verifies performance to all the

supported organizations. Initially this contract support will focus on supporting an aggressive timeline for the BRAC 2005 Joint Base implementation.

Classification: Unclassified

Co-Sponsor: OUSD(I&E)

Sponsor: OSD(PA&E)
FICAD
COL Douglas Hersh
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The Pentagon, Room BE798
Washington, DC 20301

Performer: BAH

Resources:

FY	*Dollars*	*Staff-years*
2008	$50,000 (PA&E share)	

Schedule:

Start	*End*
Sep 2008	

Database:

Publications: Facility Assessment Methodology; Recommendation for Optimal Delivery Method/Organization and manpower standards at 12 Joint Base sites; Cost Visibility/Transparency Framework; Installation Services Cost Model (ISM); Cost Factor Handbook for ISM; Revised DoD Instruction 4000.19, Interservice and Intergovernmental Support Agreement; Analysis of Existing COLS; DoD Manual for Installation Support Services Standards

Keywords: Government, Analysis, Infrastructure, Mathematical Modeling

PA&E–21

Title: Readiness Support: U.S. Forces and Weapon Systems Analysis

Summary: This effort will provide PA&E with U.S. force structure and weapons systems data and analytical tools to assist in analyzing these data. Specifically, the project operates and maintains PA&E's readiness models, program and force costing models, aging models, and associated databases. Continuing development and support of an integrated database and analysis toolkit. The toolkit is used extensively to extract readiness data from the Status of Resources and Training (SORTS) database and to conduct various resources to readiness analyses that enable PA&E Government analysts to assess the adequacy of resources programmed to meet defense readiness guidance. The contractor is also expected to monitor and gather data from the Defense Readiness Reporting System (DRRS), and the Services' readiness reporting systems. The contractor is expected to obtain data from the Forces Readiness and Manpower Information System (FORMIS) and to perform analyses to support PA&E action officers. This requires continuing maintenance in the form of monthly database updates using Service native data supplied by the Defense Manpower Data Center. The contractor must also demonstrate knowledge of historical DoD readiness trends, as well as the ability to carry out continued improvements in data manipulation and analysis capabilities. Additionally, the project requires extensive programmer support in order to create and/or improve modeling capabilities.

Classification: Unclassified

Sponsor: OSD(PA&E)
FICAD
Mr. Walter Cooper
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The Pentagon, Room BE798
Washington, DC 20301

Performer:

Resources:

FY	*Dollars*	*Staff-years*
2008	$205,000	

Schedule:

Start	*End*
Apr 2008	

Database: This includes database updates, improved model and data manipulation tools, and data displays—including briefing materials.

Publications:

Keywords: Government, Analysis, Forces, Weapon Systems, Data Collection, Mathematical Modeling

PA&E–22

Title: Software Cost Control (SSE-5) (CC-350K)

Summary: Software intensive systems have a poor history maintaining proposed cost, schedule, and performance goals. This phenomenon has been observed both in industry and defense sectors. Traditional methods of tracking the 'health' of a program such as Earned Value Management (EVM) tend not to be effective for multiple reasons, not the least of which stems from the complexity of embedding software within a hardware-oriented work breakdown structure (WBS), fulfilling all 35 criteria necessary to certify a EVM system, and taking overly optimistic credit for completing modules or components. Additionally, the EVM statistics often do not address defects or rework. A minimally compliant EVM control often does not allow managers to identify cost and schedule risks in a timely manner, and may be ineffective in determining the precise cause of cost and schedule risks. This study seeks to develop an effective cost control methodology, based upon the established principles of earned value management, to determine the viability of various non-intrusive cost control approach mechanisms for software intensive major acquisition systems, while avoiding costly and inefficient overhead to monitor the program. This study also seeks to demonstrate and validate and refine these methodologies on a pilot program.

Classification: Unclassified

Sponsor: Deputy Dir, Software Engineering and Systems Assurance
Mr. Bruce Amato
(703) 602-0851 x126

Co-Sponsors: OSD(PA&E), ASD/NII, USD(AT&L)/AR&A, DISA

Performer: TBD

Resources:

FY	*Dollars*	*Staff-years*
2008	$50,000 (PA&E share)	

Schedule:

Start	*End*

Database:

Publications: In addition to providing monthly activity reports, meeting minutes and other work products, the contractor will provide the following products,

Year 1:

(a) Provide a monthly summary of program specific EVM Statistics with recommendations as needed for corrective actions

(b) Provide a monthly summary of program specific Quality Metrics with recommendations as needed for corrective actions

(c) Provide a quarterly summary of Program specific Management recommendations

(d) Provide an end-of-year analysis of the effectiveness of generic cost control methods with recommendations for broader implementation if viable

Year 2:

(a) Pilot Project plans for implementation on additional programs

(b) Summary assessments of cost control effectiveness on pilots

(c) Policy and guidance recommendations for implementation of cost control methods

Year 3:

(a) Training packages on software cost control methods for industry and government

(b) White papers and presentations to U.S. and international standards bodies

Keywords: Government, Analysis, Manufacturing, Method, Study

PA&E–23

Title: Improving the Operating and Support Resource Management System for the Department of Defense (CC-400K)

Summary: The Department of Defense has resourced its Operations and Support accounts during its planning and programming processes in a manner that has required the reallocation from capital investments. There are many reasons for this phenomenon:

– O&S are level of effort accounts for which metrics are not easily developed.

– The Military Departments themselves view O&S as level of effort and keep the statement of requirements to the lowest possible number, until the execution or budget year.

– O&S depends to some extent upon age and usage of our equipment. There is not a well-defined relationship between the age and usage of material and the cost of maintenance and support.

– There are sometimes perverse incentives both within a component and within the operating agency (the holder or user of the O&S funds) to aid in the proper programming or budgeting of the account.

The result of this phenomenon is that as the future year becomes the budget year, monies have to be drawn from, usually, the capital investment accounts to fund the rising O&S accounts. That results in the reduction of quantities or the changing of requirements for in-development weapon systems. This causes great churn, price increases and slippage in the delivery dates of our new systems. As supplementals become eliminated, this phenomenon will become aggravated without new approaches. This research will recommend approaches that the Department of Defense (DOD) can use to improve resource management processes so as to rationalize allocations to the operating and support (O&S) accounts. The research will define the operational objectives of the operating and support accounts and investigate the incentive structure and the processes inherent to the sound programming, budgeting and execution of such accounts. It is

expected that the results of this effort will be to provide stability and predictability to the O&S accounts within the DOD.

Classification: Unclassified

Sponsor: USD(AT&L)/RA
Mr. Brian Gladstone
(703) 697-6070

Co-Sponsors: OSD(PA&E), OSD(P&R)

Performer: RAND

Resources:

FY	*Dollars*	*Staff-years*
2008	$100,000 (PA&E share)	

Schedule:

Start	*End*

Database:

Publications: The research effort is expected to last twenty-four months including the time to produce a RAND report. Interim briefings on the progress and findings of the research will be provided quarterly after the start of the project. A final briefing providing findings and recommendations will be provided twenty-four months after the start of the project. An initial draft report will be provided twenty-two months after the start of the project and a final draft report will be provided one month after receipt of comments from the research sponsor and the technical reviewers on the draft report. The final RAND monograph reflecting the comments and reviews will be produced approximately three months later.

Keywords: Government, Operations and Support, Study

PA&E–24

Title: Costing the Benefits of Competition in Acquisition (CC-390K)

Summary: Current cost models and cost estimating practices do not lend themselves well to quantifying the benefits of competition in acquisition. As such, Service and Defense Agency cost estimates will reflect only the added cost liabilities of carrying multiple competing teams and not the anticipated benefits that a competitive environment provides. This study directly supports the USD(AT&L) policy on Prototyping and Competition, memorandum dated 19 September 2007. The Military Services and Defense Agencies will formulate all pending and future programs with acquisition strategies and funding that provide for two or more teams producing prototypes and competing through Milestone B. The objective of this policy is to reduce time to fielding capability. The results of this study will be used by Service, Defense Agency and OSD cost communities as analytical basis for costing the benefits of competition in acquisition.

Classification: Unclassified

Sponsor: USD(AT&L)
Mr. Jose Gonzalez
(703) 693-9203

Co-Sponsor: OSD(PA&E)

Performer: Technomics

Resources:

FY	*Dollars*	*Staff-years*
2008	$130,000 (PA&E share)	

Schedule:	*Start*	*End*
	2008	
Database:		
Publications:	Interim progress reports, final report and briefings.	
Keywords:	Government, Analysis, Policy, Acquisition Strategy, Study	

Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE)

Name:	Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE)
Address:	109 Army Pentagon, Rm. 3E352, Washington, DC 20310-0109
Director:	Mr. Stephen T. Bagby, (703) 692-1722 DSN: 222-1722 FAX: (703) 614-2473
Size:	Professional: 78 Support: 5
Focus:	The focus of the Army's centrally funded Cost Research Program is to improve the capability of the Army to develop cost estimates and economic analyses. The main categories of concentration are: Database and Cost Tools Development Methodology Development Costing the Effects of New Technology Software Support Systems PPBES Linkages Total Life Cycle Costing The areas we cover are: Aircraft Systems Missiles and Space Systems Wheel and Tracked Vehicle Systems Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C^4ISR) Systems Future Technology/Tools and Models Forces and Unit Costing Operating and Support Costing Financial Management and Operations Pre-Milestone A Costing Cost & Performance Portal (CPP)
Activity:	Number of projects in progress: 13 Average duration of project: 11 months Number of Government personnel assigned to project: .25

DASA-CE–1

Title: Operating and Support Management Information System (OSMIS) Database Management

Summary: OSMIS is a Management Information System designed to assist the Army in determining the historical operating and support costs of selected major fielded weapons systems through the production of cost data and cost factors based on actual usage data. The cost data generated from OSMIS is derived from existing Army Logistics Support Management Information Systems. Includes the development of the annual data collection process, collection of data from LIF, PMR, ULLS and other sources,

construction of the annual Materiel Systems Definition by system/Line Item Number, generation and validation of Weapon system to ammunition crosswalk tables, Unit tables and system asset tables, Cost Tables and OSMIS Cost Tables. This contract also develops O&S Cost Factors for the POM, BES and President's Budget, Aircraft reimbursement rates, Class II & IV Cost Factors and management reports on data collected. The OSMIS data is also widely used as a basis for estimating O&S costs in weapon system lifecycle cost estimates. OSMIS also contains information on consumables, depot level repairables (DLRs), training ammunition, OPTEMPO, densities, depot maintenance, and petroleum, oil and lubricants (POL).

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD.

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
May 2008	Apr 2009

Database: OSMIS

Publications: U.S. Army Operating and Support Management Information System (OSMIS) online interactive relational database

Keywords: Government, Spares/Logistics, Operations and Support, Sustainability, Data Collection, Statistics/Regression, Database, Computer Model

DASA-CE–2

Title: ACEIT Enhancement, Help-Desk/Training, Consulting

Summary: Funding provides for annual-database maintenance, software maintenance, software modifications, on-demand telephonic helpdesk, e-mail technical support and training for the Automated Cost estimator Integrated Tools (ACEIT) software suite. ACEIT is the Army standard suite of analytical tools for developing cost models and life cycle cost estimates. ACEIT provides standard Work Breakdown Structures with approved definitions, standard algorithms, economic analysis functions, risk analysis, and the current inflation indices for Army-wide use. ACEIT links to the Automated Cost Data Base (ACDB) modules to provide rapid analysis and documentation of cost and technical data. Maintenance and enhancement of the ACEIT software suite is an annual recurring requirement.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD.

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
Apr 2008	Mar 2009

Database: None

Publications: ACEIT Version 7.1, ACEIT Application Programming Interface (API) Document

Keywords: Government, Estimating, Analysis, Life Cycle, Mathematical Modeling, Computer Model

DASA-CE–3

Title: Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C^4ISR) Systems

Summary: Continue to develop and update a comprehensive command, control, communication, computer, intelligence, surveillance and reconnaissance (C4ISR) Automated Cost Data Base (ACDB) Module by collecting additional cost, technical and program data, mapping it to the common WBS and entering it into the C4ISR database structure. Develop cost estimating relationships (CER) and cost-performance estimating relationships (CPER) from the C4ISR module database that will estimate state-of-the-art system technologies. Collect additional lower level cost data on C4ISR systems and components. Develop cost estimating relationships (CER) and cost-performance estimating relationships (CPER) from the lower level data.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
Jun 2008	May 2009

Database: ACDB database

Publications: Updated database on CD

Keywords: Industry, Analysis, Electronics/Avionics, C&TD, SD&D, Production, CPR/CCDR, CER

DASA-CE–4

Title: Electronics Methodologies Development

Summary: The objective of this project is to collect data and develop cost estimating relationships (CER), cost-performance estimating relationships (CPER), factors and/or other costing methodologies for electronics components. Miniaturization of electronics components may cause a cost penalty. Existing methodologies, especially weight based CER/CPER typically do not account for the inverse relationship between size and cost when a vendor is trying to reduce the size of an existing component. In other cases miniaturization could result in reduced cost (e.g., reducing the number of printed circuit boards from 4 to 2). In the defense industry size and performance typically take precedent over cost however we still need to accurately estimate the increased costs. Also many defense programs are requiring contractors to push the state of the art versus using proven commercial off the shelf items. This effort is not focused on the new development but rather on repackaging or shrinking existing technology. In addition, there are usually second order impacts of miniaturization because the reduction in size of one component could cause issues on other components. At a minimum a program's testing costs could increase.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
Jun 2008	May 2009

Database: None

Publications: CD containing methodology results and raw data

Keywords: Government, Estimating, Analysis, Electronics/Avionics, SD&D, Production, Manufacturing, Advanced Technology, Data Collection, Mathematical Modeling, Statistics/Regression

DASA-CE–5

Title: Tri-Service Missile and Smart Munitions Database

Summary: DASA-CE in conjunction with the Air Force and Navy Cost Communities has participated in the joint development and maturation of this Tri-Service database. Tasks that will be performed under this delivery order include additional data collection for the Missile Module of the Automated Cost Data Base (ACDB), additional data collection to support the use of parametric models, continued expansion the ACDB with missile subsystem cost, technical and programmatic data, and providing training on the Missile Module of ACDB. There is one research effort that will be performed under this delivery order. Propulsion (Rocket Motor) cost performance estimating relationships (CPER) and/or cost estimating relationships (CER) will be developed that can provide rough order of magnitude estimates for various types of missiles and munitions.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD.

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
May 2008	May 2009

Database: ACDB FoxPro database

Publications: Updated database on CD

Keywords: Government, Estimating, Analysis, Missiles, C&TD, SD&D, Production, Labor, Material, Overhead/Indirect, Engineering, Manufacturing, CPR/CCDR, WBS, Data Collection, Database

DASA-CE–6

Title: Wheel and Tracked Vehicle (Manned and Robotic) Database and Methodology Development

Summary: Continue to develop and update a comprehensive Wheeled and Tracked Vehicle (WTV) Automated Cost Data Base (ACDB) by collecting additional cost, technical, performance and programmatic data mapping it to a common work breakdown structure (WBS) and entering it into the WTV ACDB. This delivery order will develop cost estimating relationships (CER) and cost-performance estimating relationships (CPER) that provide ODASA-CE support in the development of cost estimates and analyses of designated vehicle systems. This project also includes the following cost studies:

- System of Systems: Family of Vehicles
- Ground Vehicle Programs Requirements Growth Research
- Heavy Brigade Combat Teams (HBCT) Vehicle Modernization Cost-Benefit Analysis
- Unmanned Ground Vehicle (UGV) Cost Methodology Research
- Prototype Manufacturing/Recurring Manufacturing Cost Methodologies, Procurement Below-the-line Cost Methodologies, and Operating and Sustainment Cost Methodologies.
- Integration Readiness Level Development and Costing

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
Jun 2008	May 2009

Database: ACDB FoxPro database

Publications: Updated database on CD, electronic documents

Keywords: Government, Estimating, Analysis, Land Vehicles, C&TD, SD&D, Production, Labor, Material, Overhead/Indirect, Engineering, Manufacturing, CPR/CCDR, WBS, Data Collection, Database

DASA-CE–7

Title: Aircraft Database Development

Summary: Continue data collection, normalization and input of new CCDR into the Aircraft ACDB. Collect aircraft subsystem cost, technical, and programmatic data. Perform thorough review of collected raw data in preparation for entry into the Aircraft Module ACDB. Finally, ensure the accuracy and display of all data entered into the ACDB. Collect sufficient data to allow use of a commercial parametric estimating model (e.g., PRICE-H). Review the technical and performance characteristics identified in previous UAV research efforts to determine characteristics that are commonly used when specifying UAV requirements that could be used as input parameters to estimate the costs of development and manufacturing costs of UAV components and/or systems. Determine the system-level and sub-system technical and performance characteristics that could be used as estimating relationship variables. Identify technical and performance characteristics that could be used as estimating relationship variables for command and control elements. Conduct review with Government technical representative within three months of contract award to obtain consensus on cost estimating parameters. The non-cost data collection will focus on these technical, performance or capability parameters. Collect cost, technical and performance data using a work breakdown structure (WBS) or a portion of the UAV WBS determined by contractor and Government technical representative. Contractor will propose WBS for data collection within four months of contract award. Government technical representatives will review proposed WBS and meet with contractor within two weeks of WBS receipt to finalize data collection elements. Identify specific systems and/or subsystems as candidate data points for inclusion in the study. The contractor shall provide interim data deliveries at the informal progress reviews.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
Jun 2008	May 2009

Database: ACDB FoxPro database

Publications: Updated database on CD

Keywords: Government, Estimating, Analysis, Helicopters, C&TD, SD&D, Production, Labor, Material, Overhead/Indirect, Engineering, Manufacturing, CPR/CCDR, WBS, Data Collection, Database

DASA-CE–8

Title: Standard Service Cost (SSC)

Summary: Develop Standard Service Costing (SSC) cost estimating relationships (CERs) for green, amber, red, and black quality standards pertinent to each installation as indicated in our most current Analysis Methodology Standard Operating Procedure. Use normalized quantitative data from Service Based Costing (SBC), qualitative data from the Installation Status Report (ISR), and other sources where applicable for fiscal years 2004, 2005 and 2006. Refine and build adjustment table for de-normalization as indicated in our most current De-normalization Methodology. Develop variable input tables for Base Operations Requirements Model (BRM) CER requirements and support validation process. Alternatives to this task may be considered and approved by DASA-CE's Technical Representative. Provide general cost estimating support and database management to include Performance Metric Warehouse (PMW), support to PPBES Processes for HQDA, ACSIM, IMCOM, and other cost estimating studies, models, and tools.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:

FY	*Dollars*
2008	TBD

Schedule:

Start	*End*
May 2008	Apr 2009

Database: IBM PC Compatible

Publications: None

Keywords: Government, Programming, Budgeting, Facilities, Infrastructure, Operations and Support, Data Collection, Mathematical Modeling, CER

DASA-CE–9

Title: Personnel Costing System

Summary: Personnel costing is a recurring annual requirement to support the Army PPBS process. Military and Civilian Pay and associated benefits consume a large component of the Army's budget. Two systems provide the tools for Army decision makers—Civilian Rate and Execution System (CRE) and the Army Military-Civilian Cost System (AMCOS). CRE provides the Army civilian pay rates based upon execution data as directed by OMB Circular A-11. Pay rates are changing from GS to NSPS. The pay rates are then used by G-1 (manpower), G-8 (programming), PEGS, and ABO (budget) to develop reports necessary in the PPBES process. AMCOS is an automated tool that helps users estimate the costs associated with personnel and personnel requirements for different grades and skills. AMCOS contains a comprehensive database of personnel-related cost factors for the Active, Reserve, and Civilian components. Applications of the tool include the life cycle cost estimation for weapon systems, evaluation of personnel policy decisions, assessments of Organizational alternatives, and other types of economic analyses.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:	*FY*	*Dollars*
	2008	TBD

Schedule:	*Start*	*End*
	May 2008	Apr 2009

Database: IBM PC Compatible

Publications: None

Keywords: Government, Estimating, Manpower/Personnel, Life Cycle, Labor, Data Collection, Mathematical Modeling, Computer Model

DASA-CE–10

Title: Force and Contingency Cost Models Update

Summary: This effort is to provide required annual maintenance and updates of the FORCES suite of models. The Force and Organization Cost estimating System (FORCES) is an Army M&S Standard system. Currently over 1,600 customers use the FORCES suite of models worldwide for analyses ranging from Force activation, annual operating costs and movement of TO&E units, contingency deployment costing, as well as a myriad of end strength reduction and streamlining actions. G-8 PA&E, Army Budget, G-3 and other analysts throughout the Army and OSD rely on these models to provide timely and accurate cost analyses to the Army and Secretariat's Staffs, OSD and Congress.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:	*FY*	*Dollars*
	2008	TBD

Schedule:	*Start*	*End*
	May 2008	April 2009

Database: IBM PC Compatible

Publications: None

Keywords: Government, Estimating, Forces, Operations and Support, Data Collection, Mathematical Modeling, Computer Model

DASA-CE–11

Title: Software Database

Summary: Implement a purchase order contract specifically designed to meet the unmet operational needs of the Office of the Deputy Assistant Secretary of the Army for Cost & Economics (ODASA-CE) in the areas of Software Cost Data Collection and Software Metrics Data Base. "Software Cost Data" is defined as the raw data collected from completed software development and maintenance efforts. This software cost data is not limited to only costs, but will include data categories that are essential to better understand and estimate software cost, staffing & schedule concerns (i.e., hours worked, staffing levels, source line of code (SLOC) counts, schedule length, etc.). This raw data will be used to develop software metrics that will assist the Army in estimating reasonable and realistic software program cost, staffing and schedule. A "Software Metric" is defined as a measurement of a software product at any stage of development (i.e., SLOC count or developmental hours) or a measurement of the software development process (i.e., overall productivity, SLOC growth, development schedule). Software metrics will be developed from the raw

software cost data that is collected. The "Software Metrics Data Base" is where the software cost data will be stored and software metrics will be maintained and updated.

Classification: Unclassified

Sponsor: DASA-CE

Performer: TBD

Resources:	*FY*	*Dollars*	*Staff-years*
	2008	TBD	

Schedule:	*Start*	*End*
	Jun 2008	May 2009

Database: Excel compatible

Publications: Updated database on CD, electronic documents

Keywords: Industry, Software, Data Collection, Database

DASA-CE–12

Title: Joint Integrated Analysis Tool (JIAT)

Summary: The Joint Integrated Analysis Tool (JIAT) concept is an architecture that allows models in the functional areas of cost estimating, engineering design, requirements, capability, and performance analysis to be linked together. JIAT will provide near real-time cost estimating capability to the acquisition and requirements communities. JIAT will include Office of the Deputy Assistant Secretary of the Army for Cost and Economics (ODASA-CE) databases, cost, engineering, and requirements modules and provide read access to cost and technical data in each commodity area: Missiles, Aircraft, Vehicles and Communications-Electronics Systems. The objective of the JIAT program is to allow cost and requirements analysts to develop cost estimates and perform cost-performance trades at the system level (future development at lower levels) with the limited amounts of data available early in a program's lifecycle. The architecture will also allow analysts to perform Cost as an Independent Variable (CAIV) analysis and Capabilities Costing. JIAT will incorporate various Army analysis models, databases and commercial cost estimating products (SEER, PRICE, ACEIT, etc.) to perform trade-off analysis with optimal techniques. The JIAT system is a web-based client model and a client server model and its host server will be at the Army Data Center – Fairfield (ADCF). The ADCF is in a joint development and maintenance agreement with the Army Business Transformation Office (DUSA-BT) for the purpose of expanding the Army Workload & Performance System (AWPS). The ADC will provide support to establish interfaces with OSMIS, AMCOS, FORCES and other .mil systems.

Classification: Unclassified

Sponsor: DASA-CE

Performer: Tecolote Research, Inc.

Resources:	*FY*	*Dollars*	*Staff-years*
	2008	$740,000	

Schedule:	*Start*	*End*
	Aug 2007	Jul 2008

Database: Integration of OSMIS, AMCOS and FORCES databases

Publications: Cost Estimating Standards, Pilot Test Jul 2008

Keywords: Government, Estimating, Analysis, Integration, Mathematical Modeling

DASA-CE–13

Title: Cost & Performance Portal (CPP)

Summary: This effort maintains the technology of the Cost & Performance Portal (CPP) and continues to maintain existing products and to develop new products. The CPP is an Oracle based commercial off-the-shelf (COTS) suite of tools designed to promote an Army cost culture by linking Army cost and performance data for multiple functional areas to provide analytical reports for Army cost analysts, Army functional managers, and Army senior leaders. A major goal of the CPP is to add value to the Army by automating manual processes for collecting and analyzing data, and to provide transparent visibility of Army cost and performance information to the Army community. Some of the major product areas of the CPP include: Army Command Mid-Year review, OPTEMPO, IMCOM Services, IMCOM Common Level of Support (CLS) Support Service Programs (SSPs), and an MPA Forecasting Model.

Classification: Unclassified

Sponsor: DASA-CE

Performer: Northern Taiga Ventures, Inc.

Resources:

FY	*Dollars*
2008	$2,484,000

Schedule:

Start	*End*
Sep 2007	Sep 2008

Database: None

Publications: Brochure, http://www.asafm.army.mil/ceac/cpp/cpp.asp

Keywords: Government, Estimating, Analysis, Computer Model

Army TACOM Life Cycle Management Command (LCMC)

Name:	U.S. Army TACOM Life Cycle Management Command (LCMC), Cost & Systems Analysis	
Address:	6501 E. 11 Mile Road Warren, MI 49397-5000	
Director:	Richard S. Bazzy	
Size:	Professional: 58 Support: 3 Consultants: 0 Subcontractors: 0	
Focus:	Responsible for preparation of program office estimates, life cycle cost estimates, economic analyses, and combat effectiveness modeling. Supports the development of combat and tactical vehicles.	
Activity:	Number of projects in process: Average duration of a project: Average number of staff members assigned to a project: Average number of staff-years expended per project: Percentage of effort conducted by consultants: Percentage of effort conducted by subcontractors:	21 3–20 weeks 1–3 .5 0% 0%

LCMC–1

Title: Light Tactical Wheeled Vehicle Optimization Model

Summary: The objective of this project is to develop a tool that optimizes the capabilities of payload, performance, and protection (subject to budgetary constraints) to assist in developing a modernization strategy for the Army's tactical wheeled vehicle fleet.

Classification: Unclassified

Sponsor: TACOM Cost & Systems Analysis, the Deputy Assistant Secretary of the Army (Cost & Economics), and the Naval Postgraduate School.

Performer: Naval Postgraduate School with support from TACOM Cost & Systems Analysis

Resources:

FY	*Dollars*	*Staff-years*
2008	$100,000	.25

Schedule:

Start	*End*
FY07	FY08

Database: None

Publications: None

Keywords: Government, Estimating, Land Vehicles, Acquisition Strategy, Mathematical Modeling, Mathematical Model

LCMC–2

Title: Effect of Competition on the Procurement of Secondary Supply Parts

Summary: The objective of this project is to research the historical procurement cost reduction in the price of secondary spare part when competition is introduced.

Classification: Unclassified

Sponsor: TACOM Cost & Systems Analysis and the Deputy Assistant Secretary of the Army (Cost & Economics).

Performer: Science Applications International Corporation (SAIC) with support from TACOM Cost & Systems Analysis

Resources:

FY	*Dollars*	*Staff-years*
2008	$20,000	.25

Schedule:

Start	*End*
FY08	FY09

Database: None

Publications: None

Keywords: Government, Estimating, Land Vehicles, Acquisition Strategy, Method

LCMC–3

Title: Risk Analysis in Automated Cost Estimating Integrated Tool (ACEIT)

Summary: The objective of this project is to develop a template in ACEIT that would help cost analysts quantify cost estimating risk in a weapon system program.

Classification: Unclassified

Sponsor: TACOM Cost & Systems Analysis and the Deputy Assistant Secretary of the Army (Cost & Economics).

Performer: Tecolote with support from TACOM Cost & Systems Analysis.

Resources:

FY	*Dollars*	*Staff-years*
2008	$15,000	.20

Schedule:

Start	*End*
FY08	FY08

Database: None

Publications: None

Keywords: Government, Estimating, Land Vehicles, Risk/Uncertainty, Computer Model

Army Aviation and Missile Command (AMCOM)

Name:	Cost Analysis Division, Command Analysis Directorate (CAD), G-3 U.S. Army Aviation & Missile Life Cycle Management Command (AMCOM)	
Address:	AMSAM-OPS-CA-CA, Redstone Arsenal, Alabama 35898-5000	
Director:	Frank T. Lawrence, Director, Command Analysis (256) 842-2817, DSN 788-2817, Fax (256) 876-6351 frank.lawrence@us.army.mil Claudia L. Rhen, Chief, Cost Analysis Division (256) 842-7843, DSN 788-7843, Fax (256) 876-6415 claudia.rhen@us.army.mil	
Size:	Professional: 63 Support: 4 Consultants: N/A Subcontractors: N/A	
Focus:	Provide cost estimation and analysis support to Aviation, Missiles and Space Program Executive Offices, Program/Project Offices, and AMCOM Life Cycle Management Command (LCMC) organizational elements. Manages the AMCOM Cost Analysis Programs. Develop, update or obtain Cost Estimating Relationships (CERs), cost factors, and mathematical and computerized cost models for estimating purposes. Develop cost estimates to support Analyses of Alternatives (AoAs), tradeoff studies, and force structure estimates. Develop and prepare life cycle cost estimates, and conduct other related studies in support of weapon systems cost analysis. Perform cost risk analyses and cost risk assessments to support weapon systems program decisions. Provide certification/validation for cost estimates and economic analyses.	
Activity:	Number of projects in process:	30
	Average duration of a project:	3–26 weeks
	Average number of staff members assigned to project:	1–4
	Average number of staff-years expended per project:	1
	Percentage of effort conducted by consultants:	0%
	Percentage of effort conducted by subcontractors:	0%

Major focuses are supporting PEOs/PMOs for upcoming Milestone Reviews and associated Acquisition activities. Command Analysis Directorate (CAD) is also actively engaged in Condition Based Maintenance (CBM) and Aviation RESET cost analysis and systems analysis efforts, along with Performance Based Logistics (PBL) Business Case Analyses (BCAs) and Supply Chain Management initiatives.

No active cost research projects at this time. All cost research projects are through DASA-CE.

Army Training and Doctrine Command Analysis Center—White Sands Missile Range (TRAC-WSMR)

Name:	TRAC-WSMR (Matrix Support to Cost Analysis)	
Address:	White Sands Missile Range, NM 88011	
Director:	Dr. Dale M. Dannhaus	
Size:	Professional: 3 Support: 1	
Focus:	Cost/Resource Analysis for Army AoAs	
Activity:	Number of projects in progress	6
	Average duration of a project	6–12 months
	Average number of staff members assigned to a project	1
	Average number of staff years expended per project	.6
	Percentage of effort conduct by consultants:	0%
	Percentage of effort conducted by subcontractors:	0%

TRAC-WSMR–1

Title: Cost Analysis for AoAs

Summary: The objectives of these cost analyses are to support the AoAs for different Milestones. Ongoing and recently completed AoAs include Joint Light Tactical Mobility EOA, Battlefield Identification Device Analysis, Army Integrated Air and Missile Defense AoA, Multi-Mission Radar AoA, High Capacity Communications Capability AoA, Indirect Fire Protection Capability AoA.

Classification: Unclassified

Sponsor: TRADOC ARCIC

Performer: Resource Analysis Directorate, TRAC-WSMR

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*

Database: None

Publications: "High Capacity Communications Capability (Draft)," TRAC-WSMR publication (Draft)
"MRM Analysis of Alternatives," TRAC-WSMR publication
"Unmanned Aerial System Mix Analysis," TRAC publication
"Joint Land Tactical Mobility Evaluation of Alternatives," TRAC publication

Keywords: Government, Analysis, Weapon Systems, Life Cycle, Economic Analysis, Study

Naval Center for Cost Analysis (NCCA)

Name:	Naval Center for Cost Analysis (NCCA)
Address:	1000 Navy Pentagon Rm. 4C449 Washington, DC 20350-1000
Director:	Ms. Wendy Kunc (703) 692-4889
Size:	Professional: 13 civilian, 1 military Support 1 civilian Consultants: 4 Subcontractors:
Focus:	The Naval Center for Cost Analysis (NCCA) prepares independent cost estimates for DON ACAT 1C programs and for major automated information systems. NCCA also manages the DON VAMOSC Program and coordinates DON cost research. The focus of the NCCA cost research program is as follows: improved acquisition and operating and support (O&S) cost/technical databases (e.g., VAMOSC, ACDB, etc.); improved methods for estimating direct and indirect O&S costs; improved methods for estimating software development/maintenance costs; improved methods for estimating specific SDD/E&MD cost elements, e.g., non-recurring engineering, system integration, government in-house support, etc.; methods for estimating the cost impact of acquisition reform initiatives.
Activity:	Number of projects in process: 9 Average duration of a project: Average number of staff members assigned to a project: Program: Average number of staff-years expended per project: Program: Percentage of effort conducted by consultants: Percentage of effort conducted by subcontractors:

NCCA–1

Title:	Operating and Support Cost Analysis Model (OSCAM-Naval Suite)
Summary:	These models were developed using a "system dynamics" approach. This approach provides a structured methodology for dealing with complex systems having many interacting components. A system dynamics approach enables us to capture the dynamic behavior of a system while allowing for a flexible design, which can be easily enhanced and expanded. The model suite provides the flexibility for fast, top-level cost estimating, as well as the framework for analyzing possible policy decisions and their impact on cost and availability. Model outputs include both cost and availability. The inclusion of availability data within the model is crucial because cost reduction policies need to be analyzed in conjunction with their impact on availability, and vice versa.
Classification:	Unclassified

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, Room 4C449
Washington, DC 20350-1000
Mr. Michael Carey, (703) 692-4901

Specialist Procurement Services/Cost Forecasting (SPS/CF)
MoD Abbey Wood
P.O. Box 702
Bristol BS12 7DU
UK
Mr. Phillip Goodfield, UK, 011 44 117 91 34025

Performer: NCCA in-house, NSWC-CD in-house, UK MoD in-house and HVR Consulting Services, Ltd.
Mr. Michael Carey, NCCA, (703) 692-4901
Mr. Craig Clark, HVR CSL, 011 44 1420 87977
Ms Mary M. Mertz, NSWC-CD, (301) 227-4012

Resources:

FY	*Dollars*	*Staff-years*
1996	UK$ only	1.0
1997	UK$ only	1.5
1998	$123,000 + UK$	0.75
1999	$125,000 + UK$	0.5
2000	$96,203 + UK$	0.5
2001	$100,000 + UK$	0.5
2002	$125,000 + UK$	0.5
2003	$135,000	0.5
2004	$125,000	0.5
2005	$125,000	0.5
2006	$125,000	0.5
2007	$211,000	0.7
2008	$351,000	2.0

Schedule:

Start	*End*	
Jan 1997	Nov 1997	Version 1 development
Dec 1997	Feb 1998	Version 2 development
Aug 1998	Apr 1999	Version 3 development
May 1999	Apr 2000	Version 4 development
Jun 2000	Sep 2001	Version 5 development
Dec 2001	Jul 2002	Version 6 development
Jun 2005	Jan 2006	Version 7 development
May 2007	Oct 2008	Version 8 development

Database: VAMOSC/other cost data and technical data

Publications: Training information, model software, and supporting documentation available on website, www.oscamtools.com.

Keywords: Government, Estimating, Analysis, Operations and Support, Sustainability, Ships, Mathematical Modeling, Statistics/Regression, Database, Method, CER, Study

NCCA–2

Title: Aircraft Operating and Support Cost Analysis Model (OSCAM-Air)

Summary: This model was developed using a "system dynamics" approach. This approach provides a structured methodology for dealing with complex systems having many interacting components. A system dynamics approach enables us to capture the dynamic behavior of a system while allowing for a flexible design that can be easily enhanced and expanded. Many questions posed today (e.g., How can the Navy reduce operating and support costs

while maintaining readiness?) cannot be addressed with existing tools. The model will provide the flexibility for fast, top-level cost estimating, as well as the framework for analyzing possible policy decisions and their impact on cost and availability. Model outputs will include both cost and availability. The inclusion of availability within the model is crucial because cost reduction policies need to be analyzed in conjunction with their impact on availability, and vice versa.

Classification: Unclassified

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, Room 4C449
Washington, DC 20350-1000
Mr. Michael Carey, (703) 692-4901

Performer: NCCA in-house and HVR Consulting Services, Ltd
Mr. Michael Carey, NCCA, (703) 692-4901
Mr. Craig Clark, HVR CSL, 011 44 1420 87977

Ms Mary M. Mertz, NSWC-CD, (301) 227-4012

Resources: See OSCAM Naval Suite above

Schedule:

Start	*End*	
Apr 1999	Sep 1999	(Prototype development)
Oct 1999	Apr 2000	(Version 1 development)
Jun 2000	Sep 2001	(Continuing development)
Dec 2001	Nov 2002	(Version 2 development)
Mar 2003	Mar 2003	(Verification and Validation)
Sep 2003		(Released)
Jun 2005	Jan 2006	Version 3 development

Database: VAMOSC/other cost data and technical data

Publications: Training information and supporting documentation available on website, www.oscamtools.com.

Keywords: Government, Estimating, Analysis, Operations and Support, Sustainability, Aircraft, Mathematical Modeling, Statistics/Regression, Database, Method, CER, Study

NCCA–3

Title: Naval VAMOSC Management Information System

Summary: The Visibility and Management of Operating and Support Costs (VAMOSC) management information system displays Naval operating and support (O&S) costs and related information (e.g., operating hours or manning levels) for ships, shipboard systems, aircraft, weapons, and USMC ground systems. Depending on the specific commodity type and system, the VAMOSC Oracle relational databases contain up to 20 years of data presented by fiscal year by alternative hierarchical cost element structures. Depending on the cost element, data for a particular commodity are available not only at the system level, but also at the subsystem and component levels. Detailed ship, aviation, and USMC ground equipment maintenance data provide additional insight into Organizational, Intermediate, and Depot level maintenance man-hours and parts costs. Ship O&I level maintenance data are reported by ship and Equipment Identification Code, and ship public depot maintenance data are reported by ship and Expanded Ship Work Breakdown Structure. Aviation O&I maintenance data are reported by Type/Model/Series and Work Unit Code. USMC maintenance data are reported by Table of Authorized Material Control Numbers (TAMCNs). A five-year (FY99–03) improvement effort was completed that increased the breadth (i.e., weapon system and cost element coverage), depth (i.e., cost element visibility), timeliness, and accessibility of the VAMOSC database. A detailed manpower database containing military pay and attribute data was released during FY03.

Classification: Unclassified

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, Room 4C449
Washington, DC 20350-1000
Mr. Michael Carey, (703) 692-4901

Performer: IBM Business Consulting
Mr. Michael Carey, Program Manager, (703) 692-4901
Mr. Don Clarke, IT Integration, (703) 692-4893
Mr. John Murray, Aviation Deputy PM, (703) 692-4882
Mr. Peter Bowman, IBM Business Consulting, (703) 653-7195

Resources:

FY	*Dollars*	*Staff-years*
2000	$2,800,000	5.0
2001	$2,035,000	5.0
2002	$2,615,000	5.0
2003	$2,700,000	2.5
2004	$2,400,000	2.5
2005	$2,400,000	2.5
2006	$2,400,000	3.5
2007	$3,208,000	2.5
2008	$3,260,000	2.5

Schedule:

Start	*End*
FY 1999	Continuing

Database: VAMOSC Ships, Shipboard Systems, Aviation, Weapons, USMC Ground Systems, Personnel

Publications: Data and supporting documentation accessible via www.navyvamosc.com and www.usmcvamosc.com

Keywords: Government, Operations and Support, Data Collection, Database

NCCA–4

Title: NCCA Online Document Library

Summary: The NCCA Online Document Library is currently comprised of over 13,000 cost estimating related documents. These documents are currently available in PDF format from the NCCA website. This allows the cost community to search for and find documents quickly from any location with Internet access. The documents are available for download to Government employees and FFRDCs directly from the website, while contractors can get the documents from their government sponsors. Additional documents have been identified to add to the library in the near future. An online document submission, review and approval process is being added to the website to allow representatives from around the cost community to insert and manage new documents remotely.

Classification: Unclassified

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, Room 4C449
Washington, DC 20350-1000
Mr. Don Clarke, (703) 692-4893

Performer: NCCA in-house
Perot Systems
Unisys Corporation

Resources:

FY	*Dollars*	*Staff-years*
2003	$294,000	0.1
2004	$125,000	0.1
2005	$75,000	0.1
2007	$136,000	0.1
2008	$75,000	0.1

Schedule:

Start	*End*
Oct 1, 2003	Jul 4, 2008

Database: Currently there is a Microsoft Access database that contains information on over 13,000 documents in the NCCA library.

Publications: Information available online at http://www.ncca.navy.mil/resources/library.cfm

Keywords: Government, Analysis, Life Cycle, Software, Data Collection, Schedule, Risk/Uncertainty, CER, Aircraft, Ships, Missiles, Space Systems, Land Vehicles, Electronics/Avionics

NCCA–5

Title: NCCA Software Development Estimating Handbook Update

Summary: This effort will update and enhance the existing NCCA *Software Development Estimating Handbook - Phase One* with new and updated weapon system information and methodologies. This first volume is expected to be posted to the NCCA web-site by 30 Sept 08. In addition to Volume I, this effort will add a second volume covering AIS programs. Volume II is expected to be posted to the NCCA web-site by 30 Sept 09.

Classification: Unclassified

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, 4C449
Washington, DC 20350-1000
Ms. Susan Wileman, (703) 692-4892

Performers: Mr. John Moskowitz, NCCA (technical advisor)
Ms. Susan Wileman, NCCA (lead)
Mr. Wilson Rosa, Air Force Cost Analysis Agency (AFCAA) (advisor/additional funding)
USAF Software Technology Support Center (STSC) (authors)
Mr. "Mike" Tran, Naval Surface Warfare Center - Carderock (NSWC-CD) (independent reviewer)

Resources:

	FY05	*FY06*	*FY07*	*FY08*	*FY09*
NCCA	$240,000	$175,000	$90,000	$94,000	$97,000
AFCAA	$125,000	$50,000	$63,000		

Schedule:

Start	*End*
May 2005	Sep 2009

Database: Data collected and used for the handbook volumes

Publications: Two up-to-date volumes of the *Software Development Estimating Handbook* – one for weapon systems and one for AIS programs.

Keywords: Government, Estimating, Data Collection, Database, Software, Schedule, Study

NCCA–6

Title: Aircraft / Ship / Weapons / Major System Acquisition Cost and Requirements Database

Summary: This research project is building a cost and technical and programmatic acquisition cost database. This project was started in FY04 by the Air Force Cost Analysis Agency (AFCAA). The Naval Center for Cost Analysis (NCCA) worked with AFCAA and Naval Air Systems Command and other USAF cost staff in building a Joint Cost Analysis Research and Database (JCARD) research project. NCCA has supported funding the NAVAIR Aircraft and aircraft systems and NAVSEA Ship/ship systems database projects since FY05. The JCARD funding covers civilian staff at Naval Air Systems Command. The Ship effort funds contractor support services.

Classification: Cost Data: Business Sensitive
Technical Characteristics: Business Sensitive

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, Rm. 4C449
Washington, DC 20350-1000
Mr. Tom Burton, (703) 692-4887

Performer: Mr. Tom Burton, (703) 692-4887
Mr. Anil Dhawan, (703) 692-4895
Mr. Don Clarke, (703) 692-4893
Mr. Don Allen, NAVAIR 4.2
Ms. Saroja Raman, NAVAIR4.2

Resources:

FY	*Dollars*
2005	350,000
2006	380,000
2007	400,000
2008	418,000
2009	432,000
2010	447,000

Schedule:

	Start	*End*
AIRCRAFT	Apr 2005	TBD
NAVSEA	May 2005	TBD

Database: Development, Production cost, technical and programmatic data

Publications: N/A – This will be a controlled access database

Keywords: Industry, Aircraft, Ships, Weapon Systems, Electronics/Avionics, Engineering, Manufacturing, Production, WBS, Data Collection, Database

NCCA–7

Title: Portfolio Analysis Pilot and Methods

Summary: NCCA developed methods for conducting portfolio analysis and tested them with a pilot portfolio analysis of mine countermeasure systems. These methods were then used successfully to assess and present the risk-reward implications for other special analyses and the on-going OSD joint capability portfolio test cases. NCCA will continue to refine the techniques in support of Navy and OSD portfolio initiatives.

Classification: Unclassified

Sponsor: Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon, Rm. 4C449
Washington, DC 20350-1000
ASN(FM&C)

Performer: Mr. Brian Flynn, NCCA

Mr. Robert Hirama, NCCA, (703) 692-4898

Resources:

FY	*Dollars*	*Staff-years*
FY05	0	1
FY06	0	1
FY07	0	0.3
FY08–13	TBD	TBD

Schedule:

Start	*End*
Mar 2005	TBD

Database: Cost and effectiveness data for the mine countermeasure pilot

Publications: Briefings for DoD Cost Analysis Symposium, Professional Development Institute

Keywords: Government, Estimating, Database, Risk/Uncertainty

NCCA-8

Title: NCCA Inflation Calculator (NIC) Enhancements

Summary: This effort surveys the needs for inflation calculation tools throughout the Navy cost community, and investigates the ways the NIC could be enhanced to better meet these needs. The proposed enhancements that have wide applicability will be incorporated into the NIC. This research includes a web-based survey of user opinions of the NIC and discussions with data providers and user communities.

Classification: Unclassified

Sponsor: NCCA

Performer: Robert Hirama, (703) 692-4898

Resources:

FY	*Dollars*	*Staff-years*
2008	0	.1

Schedule:

Start	*End*
Mar 2008	Mar 2009

Database: Inflation rate history

Publications: Updated inflation calculator at www.ncca.navy.mil/services/inflation.cfm

Keywords: Government, Economic Analysis

NCCA-9

Title: NATO Independent Cost Estimating and its Role in Capability Portfolio Analysis

Summary: The NATO Systems Analysis and Studies (SAS) Panel established a task group to demonstrate new methods and models for estimating for life-cycle cost and performing portfolio analysis and to identify best practices.

Independent Cost Estimate

The study task group has chosen the Rotterdam class ship for this effort. The group will generate an independent cost estimate based on existing guidelines. Risks and uncertainty will be analyzed, and costs generated over the life cycle. Finally, after the ICE is completed, the task group will obtain information on the actual cost of the weapon system under study. These actual costs might include those for development or first unit production. Differences between actuals and estimates will be tallied and analyzed.

The task group will also analyze the NATO Alliance Ground Surveillance (AGS) system, a program that is currently in development.

Capability Portfolio Analysis

Portfolio analysis is a promising method to improve defense business practices by analyzing a group of systems as a whole rather than focusing on acquisition programs one at a time. The task group will identify best practices among NATO and Partnership for Peace (PfP) nations in performing capability portfolio analysis, especially in respect of the life-cycle costing aspects of this approach. The ultimate goal of this work is to engender more informed resource allocation decisions early in the defence planning process, to better support the joint, coalition warfighter.

Classification: Various, see **Publications** below

Sponsor: NATO Systems Analysis and Studies (SAS) Panel

Performer: Team Leader: Dr. Brian Flynn (703) 692-4902
Lead nation: United States. To date, the following nations are willing to participate: Canada, Germany, Greece, Italy, Netherlands, Norway, Poland, Sweden, Switzerland, Turkey, United Kingdom, and United States. Other NATO and PfP nations are invited to join the group.

Resources:

FY	*Dollars*	*Staff-years*
2008-2011	NTE 15K euros	TBD

Schedule:

Start	*End*
Jun 2008	Jun 2011

Database: TBD

Publications: The end product will be at least one technical report which is “unclassified unlimited.” Some information to be used in the study may be classified up to “NATO/national restricted.” Provisions for use, handling, storage, and reporting of classified, business sensitive or company proprietary data may be required; however, information to be exchanged at the meetings of the group will be unclassified.

Keywords: Government, Estimating, Case Study

Naval Air Systems Command (NAVAIR)

Name:	Naval Air Systems Command Headquarters
Address:	Cost Department (AIR-4.2), 21491 Great Mills Rd., Lexington Park, MD 20653
Director:	Dave Burgess (301) 757-7810 Web site: http://www.navair.navy.mil/air40/air42/
Size:	Professional: NAVAIR HQ 26 NAWC-AD-LAKE 22 NAWC-AD-PAX 207 NAWC-WD-CL 14
Focus:	The Cost Department provides a wide variety of cost analysis products and services. The department's primary focus is to provide a clear and comprehensive understanding of life cycle cost and attendant uncertainties to be used in developing, acquiring, and supporting affordable Naval Aviation Systems. Besides life cycle cost estimates, the Cost Department provides source selection cost evaluation support, earned value management analysis, cost research, databases and various cost/benefit studies. The focus of NAVAIR cost research is: Total Ownership Cost initiatives; cost growth; modifications; cost/benefits; engineering investigations, and building comprehensive databases. Most projects are continuous efforts or they are updated annually.
Activity:	Number of projects in process: 11 Average number of staff members assigned to a project: 1–2 Average number of staff-years expended per project: 1–2 Percentage of effort conducted by consultants: 0% Percentage of effort conducted by subcontractors: 5%

NAVAIR–1

Title: Joint Cost Analysis Research & Database (JCARD) Working Group (WG): Web Information System

Summary: The JCARD WIS was established and is maintained as an official service by the JCARD Working Group (WG). The goal of the JCARD WG is to advance the capability, productivity and credibility of the DoD Cost Analysis Community through the sharing of resources, data, knowledge and expertise. The JCARD WIS is designed to be the single information bridge between cost analysts and the numerous Department of Defense (DoD) authoritative data sources for Unclassified/For Official Use Only (U/FOUO) cost, technical and programmatic data. The concept is to provide a tool that will allow cost analysts to efficiently search for and retrieve vital information required to conduct official business for the Department of Defense. The initial focus of the WG is in the area of weapon systems/subsystems acquisition cost analysis, both development and production. During FY05 and FY06, efforts were focused on establishing the JCARD WIS and a Fixed Wing Aircraft data module. During FY07, the Fixed Wing Aircraft data module was expanded to include expenditure data and aircraft technical data. The focus for FY08 is to populate the Fixed Wing Aircraft data module with additional cost, technical and

programmatic information and establish a separate Propulsion data module. Plans for FY09 include expanding the system to incorporate missile and avionics data. The vision of the JCARD WG is to have the JCARD WIS be the one stop shop for DoD Cost Agencies to store, retrieve, and share cost, technical and programmatic information.

Classification: Business Sensitive, Contractor Proprietary

Sponsor: JCARD Working Group

NAVAIR
21491 Great Mills Rd.
Lexington Park, MD 20653

AFCAA
201 12th Street, Suite 403
Arlington, VA 22202

Naval Center for Cost Analysis (NCCA)
1000 Navy Pentagon
4C449, FMB-6
Washington, DC 20350-1000

ASC/FMC
Building 14, Room 126
1865 4th Street
Wright Patterson Air Force Base OH, 45433-7123

Performer: AIR-4.2, NCAD, AFCAA, and ASC

Resources:

FY	*Dollars*	*Staff-years*
2005	$673,000	4.5
2006	$693,000	4.5
2007	$605,000	3.5
2008	$640,000	4.0
2009	$665,000	4.5

Schedule:

Start	*End*
Jan 2005	TBD

Database: *Description:* Cost, technical, and programmatic data for historical fixed wing aircraft

Automation: Cold Fusion Web Based System, SQL Server Database

Publication: Not applicable controlled access, Web Based System and Database

Keywords: Industry, Government, Estimating, Analysis, Weapon Systems, C&TD, SD&D, Production, Labor, Material, Engineering, Manufacturing, CPR/CCDR, WBS, Production Rate, Acquisition Strategy, Schedule, Size, Data Collection, Database

NAVAIR–2

Title: Overhead Rate Study

Summary: Study the impact to NAVAIR programs as a result of change in overhead costs as provided in forward pricing rate agreements (FPRA's) or forward pricing rate proposals (FPRP's). Create a database then generate a relationship between Navy program cost, overhead change and cost factors of the FPRA or FPRP. The initial study will focus on the top NAVAIR contractors (Boeing, Lockheed, United Technologies, GE A/C Engines, Northrop Grumman, Raytheon and Bell Boeing JPO) who capture 70% of the NAVAIR TOA. The study has been greatly reduced because of the inability to obtain data to replace the Plant-Wide Data Report (DoD1921-3) from any government agency.

Classification: Business Sensitive, Contractor Proprietary

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2004	$156,000	1
2005	$328,000	2
2006	$88,000	0.5
2007	$36,000	0.2
2008	$38,000	0.2
2009	$39,000	0.2

Schedule:

Start	*End*
Mar 2004	TBD

Database: Contractor Overhead Labor Rates

Description: Cost data

Automation: Microsoft Excel

Publication: Not applicable controlled access database and Cost Estimating Relationships (CERs)

Keywords: Industry, Estimating, Analysis, Budgeting, Weapon Systems, C&TD, SD&D, Production, Labor, Overhead/Indirect, Data Collection, Mathematical Modeling, Economic Analysis, Database, Method, CER

NAVAIR–3

Title: Hourly Labor Wrap Rates Database

Summary: The Hourly Labor Wrap Rates Database is composed of selected NAVAIR contractors. It is based on the latest Forward Pricing Rate Agreement/Proposals (FPRA/FPRP), audited by Defense Contract Audit Agency (DCAA) at the specific contractor plant site. The data is constantly being updated when changes are obtained. Since there are over 109 company sites that NAVAIR does business, some NAVAIR contractor sites have not been populated at this time. The priority has been to obtain the FRPA from the largest dollar volume contractor sites. The method used to calculate the wrap rate has been reviewed and approved by DCAA before being entered. The database is stored in excel format with documentation to make it easy for 4.2 use. Future plans are to continue the population of labor rate data and to evolve the excel spreadsheets into a database. A thorough investigation will be conducted to determine the feasibility of incorporating the Labor Wrap Rate database within the JCARD Web Information System.

Classification: Business Sensitive, Contractor Proprietary

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2004	$78,000	0.5
2005	$82,000	0.5
2006	$88,000	0.5
2007	$91,500	0.5
2008	$94,000	0.5
2009	$97,000	0.5

Schedule:

Start	*End*
Mar 2004	TBD

Database: Controlled access Contractor Labor Wrap Rates

Description: Cost data

Automation: Microsoft Excel

Publication: Not applicable controlled access database

Keywords: Industry, Estimating, Analysis, Budgeting, Weapon Systems, C&TD, SD&D, Production, Labor, Material, Overhead/Indirect, Data Collection, Database, Method

NAVAIR–4

Title: HAPCA (Historical Aircraft Procurement Cost Archive) Database

Summary: The database was developed by the NAVAIR cost department in the 1980s to support aircraft production and ILS investment estimating. The cost department collected obligation cost incurred, at the P-1 budget categories, and Navy aircraft quantity information for all of the aircraft production programs executed by NAVAIR. This database contains history on a wide range of aircraft programs. The database can be sorted by aircraft type (i.e., Fighters, Attack, Trainers, etc.), type / model / series (T/M/S), contract number or procurement fiscal year. In addition to cost historical data it now contains technical and programmatic data. Future plans are to incorporate the HAPCA database within the JCARD Web Information System.

Classification: Business Sensitive, Contractor Proprietary

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2004	$78,000	0.5
2005	$82,000	0.5
2006	$88,000	0.5
2007	$91,500	0.5
2008	$94,000	0.5
2009	$97,000	0.5

Schedule:

Start	*End*
Mar 2004	TBD

Database: Controlled access Contractor Labor Wrap Rates
Description: Cost, technical, and programmatic data for historical fixed wing aircraft
Automation: Microsoft Access

Publication: Not applicable controlled access database

Keywords: Industry, Government, Estimating, Analysis, Budgeting, Weapon Systems, SD&D, Production, Labor, Material, Data Collection, Database

NAVAIR–5

Title: Software Growth Calibration Database

Summary: The database is a collection of resources in support of NAVAIR 4.2 policy to use the Holchin method to apply growth factors to software cost estimates. Equivalent Source Lines of Code (ESLOC) is a normalized size measurement that takes into account new, modifier, reused and Commercial Off-The-Shelf (COTS) code when assessing the size of efforts. Relevant articles related to software and software development from CrossTalk, The Journal of Defense Software Engineering, is among the articles readily available to assist the 4.2 Analyst. CrossTalk is an approved Department of Defense journal with the stated mission "to encourage the engineering development of software in order to improve the reliability, sustainability, and responsiveness of our warfighting capability and to inform and educate readers on up-to-date policy decisions and new software engineering technologies."

Classification: Business Sensitive, Contractor Proprietary

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2005	$78,000	0.5
2006	$45,000	0.25
2007	$47,000	0.25
2008	$49,000	0.25
2009	$51,000	0.25

Schedule:

Start	*End*
Mar 2005	TBD

Database: Controlled access Contractor ESLOC, Cost
Description: Cost, technical, and programmatic data for historical programs
Automation: Microsoft Access

Publication: Not applicable controlled access database

Keywords: Industry, Government, Estimating, Analysis, Budgeting, Weapon Systems, SD&D, Production, Labor, Material, Data Collection, Database

NAVAIR–6

Title: Repairable and Consumable Material Cost Growth Analyses

Summary: Using price and demand data from various sources, e.g., NAVICP Demand Files, Navy VAMOSC, NAVAIR NALDA, DLIS, investigate multi-dimensional factors which can explain recurring cost growth over time which exceeds normal inflation standards. This includes the impact of new items entering the inventory, obsolescence, raw material commodity cost growth, and labor cost growth. Analysis deals with mid to long-term analyses (5–15 years) as a means to eliminate short-term fluctuations and consider life cycle effects for system, sub-system level support.

Classification: Unclassified

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2004	$78,000	0.5
2005	$82,000	0.5
2006	$88,000	0.5
2007	$91,500	0.5
2008	$94,000	0.5
2009	$97,000	0.5

Schedule:

Start	*End*
Jan 2002	TBD

Database: *Title:* AVDLR and AFM Cost Growth
Description: Flying Hour Program Cost Analysis
Automation: Microsoft Access, Microsoft Excel

Publication: Not applicable controlled access database

Keywords: Government, Estimating, Analysis, Labor, Material, Data Collection, Database

NAVAIR–7

Title: Recurring Cost to Train Aircraft Squadron Personnel

Summary: Using Naval Education and Training data, develop the annual cost of classroom and formal course training to maintain squadron operational readiness. By considering the courses completed by personnel within one year of reporting for duty, through repeated sampling, an estimate can be made of the annual cost to train the normal turnover of personnel in a squadron.

Classification: Unclassified

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2004	$78,000	0.5
2005	$82,000	0.5
2006	$88,000	0.5
2007	$91,500	0.5
2008	$94,000	0.5
2009	$97,000	0.5

Schedule:

Start	*End*
Jan 2002	TBD

Database:
Title: Annual Squadron Cost of Training
Description: Develop Annualized Recurring Cost of School House Training
Automation: Microsoft Access, Microsoft Excel

Publication: Not applicable controlled access database

Keywords: Government, Estimating, Analysis, Labor, Training, Data Collection, Database

NAVAIR–8

Title: Representative Squadron Operating and Support Cost for Various T/M/S Aircraft

Summary: Annually conduct data collection and analysis of Operating and Support data to estimate the annual cost to operate and deploy various T/M/S operational aircraft squadrons. These analyses require collecting data from multiple sources and merging the information into a single Excel workbook as a means to use consistent methodology for each T/M/S.

Classification: Unclassified

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2004	$78,000	0.5
2005	$82,000	0.5
2006	$88,000	0.5
2007	$91,500	0.5
2008	$94,000	0.5
2009	$97,000	0.5

Schedule:

Start	*End*
Jan 2002	TBD

Database: *Title:* Annual TMS Squadron Cost Analysis

Description: Develop Annual Operating and Support Cost for Deployable Aircraft Squadrons

Automation: Microsoft Access, Microsoft Excel, Microsoft Word

Publication: Not applicable controlled access database

Keywords: Government, Estimating, Analysis, Manpower/Personnel, Operating and Support, Training, Data Collection, Database

NAVAIR–9

Title: Performance Based Logistics (PBL)

Summary: Department of the Navy (DoN) guidance and responsibilities for implementation of Performance Based Logistics (PBL) require use of Business Case Analysis (BCA) to support individual PBL decisions. This guide provides amplifying guidance and information for NAVAIR Program Managers and cost analysts in the development of PBL BCAs. Completion of a Business Case Analysis Cost Estimate and documentation in a consistent, repeatable format is required. A PBL Strategy is an agreement in which the logistics support provider (organic, commercial, and/or public/private partnership) is responsible for meeting result-oriented performance requirements in order to improve product support effectiveness while containing or reducing Total Ownership Cost (TOC). A critical task within a PBL BCA is defining the specific approach being taken to meet overall program objectives. From various Office of the Secretary of Defense (OSD) and DoN PBL policy statements it is clear that the overall objectives of PBL are to optimize weapon system support in a manner that will provide a cost effective process while maximizing operational effectiveness. A key part of an effective PBL approach involves establishing clear requirements and associated metrics that can be tracked over time.

Classification: Unclassified

Sponsor: NAVAIR 4.2
21491 Great Mills Rd.
Lexington Park, MD 20653

Performer: NAVAIR 4.2

Resources:

FY	*Dollars*	*Staff-years*
2005	$170,000	1
2006	$176,000	1
2007	$182,000	1
2008	$188,000	1
2009	$192,000	1

Schedule:

Start	*End*
Jan 2005	TBD

Database: Business Case Analysis Template

Description: *BCA Template*

Automation: MICROSOFT Excel

Publication: NAVAIR Knowledge Management System (KMS) Performance Based Logistics (PBL) Community of Practice (CoP) http://www.navair.navy.mil/kms

Keywords: Government, Analysis, Budgeting, Spares/Logistics, Weapon Systems, Study

NAVAIR–10

Title: Software Data Consolidation and Analysis

Summary: This is an internal effort to take all of the Software Resource Data Reports posted on the DCARC system and put them into an Excel spreadsheet allowing for various types of

analysis to be performed on the data. This includes sizing databases, productivity by commodity and company, and schedule analysis. Information is posted to a DCARC E-room allowing the DOD cost community a forum for getting the data and posting of analysis done.

Classification: Unclassified

Sponsor: Naval Air Systems Command

Performer: Naval Air Systems Command

Resources:

FY	*Dollars*	*Staff-years*
2007	$38,000	0.2
2008	$39,000	0.2
2009	$42,000	0.2

Schedule: *Start* *End*

This is a continuous process with a plan to post updates to the dataset every 6 to 8 weeks as new information is turned in by contractors

Database: *Title:* DOD Software Database Compilation

Description: Consolidated Excel file of SRDR data submittals

Automation: Excel file available to government cost analysts

Publications: None planned. Information is posted to a government only e-room hosted by DCARC

Keywords: Government, Estimating, Analysis, Weapon Systems, SD&D, Software, Data Collection, Database, CER

NAVAIR–11

Title: Naval Aviation Propulsion Cost Analysis of Type/Model/Series Engines

Summary: In support of NAVAIR AIR 4.4 Propulsion and Power, AIR 4.2.2 is developing cost analyses of selected Type/Model/Series Engines. The process is combining maintenance and material cost at all levels of repair to provide a comprehensive set of data to measure the effectiveness of propulsion systems. The analysis provides cost information down to individual serial numbered engines, but is structured to provide cost information across the entire population of engines. This effort is a combined effort of the cost and propulsion competencies.

Classification: Unclassified

Sponsor: Naval Air Systems Command

Performer: Naval Air Systems Command

Resources:

FY	*Dollars*	*Staff-years*
2008		About 1
2009		About 1

Schedule: *Start* *End*

This is a continuous process with a plan to updates cost analyses annually.

Database: *Title:* Propulsion and Power Cost Metrics

Description: Propulsion and Power Cost and Performance Data to Provide Cost Metrics

Automation: Excel file available to government cost analysts

Publications: None planned. Information is provided to AIR 4.4.7 and available for program analysts

Keywords: Government, Estimating, Analysis, Weapon Systems, SD&D, Software, Data Collection, Database, CER, Propulsion

Naval Sea Systems Command (NAVSEA)

Name:	Cost Engineering and Industrial Analysis Division, Naval Sea Systems Command (SEA 05C)
Address:	1333 Isaac Hull Ave., SE, Washington Navy Yard, DC 20376-1340
Director:	Christopher S. Deegan, (202) 781-0959
Size:	Professional: 57 Support: 2 Consultants: 0 Subcontractors: 9 collocated or 30 total
Focus:	O&S Cost Estimating; Total Ownership Cost Estimating; Commonality and Standardization of Ship Design and Construction Processes and of Ship Components or Sub-assemblies (impact on acquisition and O&S costs); Build Strategy Impact on Ship Costs; Ship Design Trade-Off Analysis Tools; Ship and Weapon System Cost Modeling
Activity:	Number of projects in process: 3 Average duration of a project: 1.3 years Average number of staff members assigned to a project: 1 Average number of staff-years expended per project: 2/3 Percentage of effort conducted by consultants: 0% Percentage of effort conducted by subcontractors: 90%

NAVSEA–1

Title: Material Vendor Survey

Summary: The objective of this annual survey is to capture future price trends and last year's actual price change for material used in Navy ship construction. The survey samples over 900 shipboard material and equipment suppliers and requests their price changes for the current year and their projections of future price changes for the next five years. The results are grouped according to Ship Work Breakdown Structure (SWBS) Cost Groups 1–9, and indices are calculated.

Classification: Unclassified

Sponsor: NAVSEA (SEA 05C)
1333 Isaac Hull Ave, SE
Washington Navy Yard, DC 20376-1340
Morris Fields, (202) 781-2709; DSN: 326-2709

Performer: Naval Shipyard Norfolk Detachment
NAVSEA Shipbuilding Support Office
3751 Island Ave, 3rd Floor
Philadelphia, PA 19153
Joe Neumann, (215) 365-5767, ext. 218

Resources:

FY	*Dollars*	*Staff-years*
Each year	$125,000	

Schedule:

Start	*End*
Oct each year	Sep each year

Database: End use is MATCER Data File update. Backup data is maintained at NAVSHIPSO.

Publications: None

Keywords: Industry, Estimating, Ships, Material, WBS, Economic Analysis, Survey

NAVSEA–2

Title: NAVSEA Common Cost Model (NCCM) – Ships

Summary: The objective of the NAVSEA Common Cost Model is to consolidate and standardize NAVSEA ship cost estimating tools/models. The common model will provide flexibility to capture unique characteristics of specific programs while retaining a common, configuration controlled structure to provide greater consistency across NAVSEA cost estimates. The model will provide standardized outputs to support both analysis and presentation of cost estimates to customers and Navy leadership. NCCM will be a web-based application that is Navy-Marine Corps Intranet (NMCI) and Section 508 compliant.

Classification: Unclassified

Sponsor: Department of the Navy
Naval Sea Systems Command (SEA 05C)
1333 Isaac Hull Ave., SE
Washington Navy Yard, DC 20376

Performer: Naval Sea System Command
Cost Engineering and Industrial Analysis Division (SEA 05C)
1333 Isaac Hull Ave., SE
Washington Navy Yard, DC 20376

Computer Sciences Corp.
1201 M Street, SE Suite 400
Washington, DC 22203

Resources:

FY	*Dollars*	*Staff-years*
2005	$552,000	0.5 man-year
2007	$400,000	0.5 man-year
2008	$100,000	0.5 man-year

Schedule:

Start	*End*
Jul 2005	Dec 2008

Database: None

Publications: None

Keywords: Government, Estimating, Analysis, Ships, Electronics/Avionics, Life Cycle, WBS, Risk/Uncertainty, Schedule, Software, Data Collection, Mathematical Modeling, Database, Mathematical Model

NAVSEA–3

Title: NAVSEA 05C Information Management System (IMS)

Summary: The SEA 05C IMS will provide a centralized repository for cost information to support the SEA 05C cost engineers, as well as the Navy Cost Community, in their development of ship platform and combat systems cost estimates for NAVSEA Program Managers. The system will be divided into multiple categories: ship, combat systems, and industrial base. The system will contain historical information related to ships, shipbuilding and

combat systems, including financial data (budgets, bid cost, actual cost data, GFE/Mission system cost, software cost), technical (production and engineering hours, weights, characteristics), contract information, industrial/economic (ship employment, inflation) and programmatic information (shipbuilding progress/schedules). All data stored in the system will be unclassified.

Classification: Unclassified

Sponsor: Department of the Navy
Naval Sea Systems Command (SEA 05C)
1333 Isaac Hull Ave, SE
Washington Navy Yard, DC 20376-1340

Performer: Naval Sea System Command
Cost Engineering and Industrial Analysis Division (SEA 05C)
1333 Isaac Hull Ave., SE
Washington Navy Yard, DC 20376

Computer Sciences Corp.
1201 M Street, SE, Suite 400
Washington, DC 22203

Resources:

FY	*Dollars*	*Staff-years*
2005	$400,000 (Ship Module)	.75 man-year
2006	$336,000 ($140K Ship, $196K CS)	.75 man-year
2007	$590,000 ($290K Ship, $300K CS)	1.5 man-year
2008	$560,000 ($560K CS)	1.5 man-year

Schedule:

Start	*End*
Aug 2005	Jun 2009 CS Module

Database: MS SQL 2005

Publications: N/A

Keywords: Industry, Ships, Schedule, CPR/CCDR, Database, CER

Naval Surface Warfare Center, Dahlgren Division (NSWCDD)

Name:	Cost Analysis Group Warfare Analysis Branch, Code W11 Requirements Analysis and Advanced Concepts Division, Code W10 Warfare Systems Department, Code W Naval Surface Warfare Center, Dahlgren Division (NSWCDD)
Address:	19008 Wayside Drive, Suite 2009 Dahlgren, VA 22448-5162
Director:	Kathy Loudin (Group Lead)
Size:	Professional: 15 Support: 0 Consultants: 0 Subcontractors: Tecolote
Focus:	The Cost Analysis Group resides within the Warfare Analysis Branch of the Requirements Analysis and Advanced Concepts Division of the Warfare Systems Department at the Naval Surface Warfare Center, Dahlgren Division (NSWCDD). The Cost Analysis Group produces cost estimates, cost-risk assessments, and affordability analysis. The Group also develops cost-estimating methodology in support of systems development and production, analyses of alternatives, and strategic planning. Particular areas of expertise include model development and maintenance, cost-research databases, technology assessments, life cycle cost estimates, budget and force-level analyses, performance-based cost models, and product-oriented cost models. The current research focus of the NSWCDD Cost Analysis Group entails radar cost modeling to support concept definition and trade-off analysis.
Activity:	None.

Marine Corps Systems Command, Assistant Commander Programs

Name:	Economic & Business Analysis Branch (EBA BRANCH)	
Address:	2200 Lester St., Quantico, VA 22134	
Director:	Dr. Todd Calhoun	
Size:	Civilians:	3
	Military:	9
	Support Contractors:	1
Focus:	Design, conduct and evaluate analyses, including analyses of alternatives, cost analyses, cost estimates, trade-off studies, business case analyses, etc., and other special studies.	
Activity:	Number of Analyses in process:	50
	Average Duration of Project:	6 months
	Average number of staff members assigned to a project:	1
	Average number of staff years expended per project:	0.25
	Percentage of effort conducted by external contractors:	75%

MCSC–1

Title: Distributed Common Ground/Surface System Marine Corps Analysis of Alternatives (DCGS-MC AoA)

Summary: The EBA BRANCH, teamed with Marine Corps Combat Development Command (MCCDC) and various contractor support, is conducting an AoA for MARCORSYSCOM Product Group Communications, Intelligence and Network Systems (PG-12 CINS) to develop the alternatives for the Marine Corps version of the DCGS intelligence family of systems. The EBA BRANCH has completed market research and capabilities-based assessment and is currently reviewing vendor submissions and formulating/evaluating alternative solutions. This process includes the development and assessment of effectiveness measures, effectiveness analysis, cost analysis, risk analysis, cost-effectiveness analysis and benefits analysis. The ultimate purpose of the AoA is to provide visibility into technology drivers and program cost, schedule, and performance risks for the program office and the Milestone Decision Authority (MDA) in support of a Milestone A. The AoA will also support subsequent program analyses and Joint Capabilities Integration and Development System (JCIDS) efforts.

Classification: Classified

Sponsor: Product Group Communications, Intelligence and Network Systems (PG-12 CINS)

Performer: MARCORSYSCOM, Economic & Business Analysis Branch (EBA Branch)
2200 Lester St.
Quantico, VA 22134

Resources:

FY	*Dollars*
2008	$908K

Schedule:

Start	*End*
Oct 07	Jun 08

Database: None

Publications: Market Research Report, Capabilities Based Analysis, Cost Estimate, AoA Study Plan, AoA Final Report, periodic briefings to AoA IPT, Final briefing to AoA IPT.

Keywords: Government, Estimating, Analysis, Electronics/Avionics, C&TD, Acquisition Strategy, Advanced Technology, Risk/Uncertainty, Review, Study

MCSC–2

Title: Courses of Action (COA) for HMMWV Life-Cycle Optimization

Summary: The scope of this effort is to assist the PM, Motor Transport in identifying the most executable course of action given a specific set of parameters. More specifically, provide PM MT reliable information to arrive at a cost effective solution to procure/sustain the HMMWV fleet through at least FY2024.

Classification: Unclassified

Sponsor: Product Group Communications, Intelligence and Network Systems (PG-15 GTES)

Performer: MARCORSYSCOM, Economic & Business Analysis Branch (EBA Branch)
2200 Lester St.
Quantico, VA 22134

Resources:

FY	*Dollars*
2008	$360K

Schedule:

Start	*End*
Mar 08	Sep 08

Database: NA

Publications: Study Plan, Courses of Action

Keywords: Government, Estimating, Analysis, Acquisition Strategy, Operations and Support, Risk/Uncertainty, Review, Study

MCSC–3

Title: TLCSM-AT Model Development

Summary: Develop and maintain policies, methodologies, tools and standards in order to conduct predictive analysis in support of Marine Corps TLCM. Additionally, identify and help remedy data deficiencies with regard to these analyses. This is ongoing model development and analytical support provided to Product Group Ground Transportation and Engineering Systems. The tasking is to establish a self-sustaining core of USMC professionals dedicated to using M&S tools in System and Enterprise predictive modeling. The team is also tasked with establishing clear and understandable metrics and policy across the Marine Corps in regards to TLCSM.

Classification: Unclassified

Sponsor: Product Group Ground Transportation and Engineering Systems (PG-15 GTES)

Performer: MARCORSYSCOM, Economic & Business Analysis Branch (EBA Branch)
2200 Lester St.
Quantico, VA 22134

Resources:

FY	*Dollars*
2008	In-house

Schedule:

Start	*End*
Ongoing	

Database: NA

Publications: Study Plan, Course of Action memos

Keywords: Government, Estimating, Analysis, Life Cycle, Acquisition Strategy, Operations and Support, Risk/Uncertainty, Review, Study

Air Force Cost Analysis Agency (AFCAA)

Name:	Air Force Cost Analysis Agency
Address:	201 12th Street, South, Suite 403, Arlington, VA 22202-4306
Director:	Mr. Richard Hartley, (703) 697-5311 Mr. Jay Jordan, Technical Director, (703) 604-0400 Ms. Deborah Cann, Research Chief, (703) 604-0402
Size:	Professional: 103 (authorized); 85 (assigned) Support: 13
Focus:	The Air Force Cost Analysis Agency supports the Air Force by providing thorough, effective independent cost analyses and special studies in support of weapon system programs. We provide quality analyses through research to develop superior analytical tools, models and databases.
Activity:	Number of projects in process: 16 Average duration of a project: 1 year

AFCAA–1

Title: Joint Cost Analysis Research Database (JCARD)

Summary: The objective of this project is to normalize and fully document Air Force and Navy cost and technical data. The database allows either an analogy-based or CER-based approach for both recurring and non-recurring costs of aircraft systems. The database contains documented functional hourly and cost information as well as technical information for each hardware WBS element and purchased equipment. Throughout the effort, data has been added to repair holes in the material costs of various aircraft and ensure the material costs are accurate and complete. FY03/04 effort focused on collecting and normalizing F-22 and F/A-18E/F, providing learning curve analysis on F/A-18 and F-15, collecting Price Bill of Material cost data and providing verification and validation of old platforms. Additionally, research was done on C-17 and the V-22 and mapped to WBS elements. The Data Dictionary continues to be updated. The FY05 effort will support the Joint Cost Analysis Research and Database Working Group (JCARD WG) by serving on the board and participating in the development of a joint web-enabled fixed wing aircraft cost database. The effort will collect, normalize, map and document additional actual cost data delivered through CCDRs or other contractor formats for the F/A-18 E/F, F/A-22 and any other aircraft deemed necessary. In FY06, Aircraft Systems data module Version 1.0 was established and the investigation of the Electronics & Software data module began. In FY07, the JCARD WG will continue with the development of the Aircraft Systems data module and expand the JCARD Information System to include electronics and software module to the Information System.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Scott Adamson, (703) 602-9317; DSN 332-9317
E-mail: Scott.Adamson@pentagon.af.mil

Performer:

Phase I	RAND
Phase II	Tecolote Research Inc.
Phase III–XIII	Naval Center for Cost Analysis (NCCA)

Resources:

	FY	*Dollars*
Phase I	93	$100,000
Phase II	96	$225,000
Phase III	97	$25,000
Phase IV	99	$80,000
Phase V	00	$120,000
Phase VI	01	$119,000
Phase VII	02	$100,000
Phase VIII	03	$126,000
Phase IX	04	$120,000
Phase X	05	$129,000
Phase XI	06	$129,000
Phase XII	07	$130,000
Phase XIII	08	$130,000

Database: Excel (pivot tables)

Publications: Written report and data dictionary.

Keywords: Government, Analysis, Estimating, Aircraft, Airframe, SD&D, Production, Labor, Material, Data Collection, Database

AFCAA–2

Title: Air Force Total Ownership Cost (AFTOC) Management Information System

Summary: AFTOC is an unclassified management information system consolidating data from many Air Force legacy data systems. The product is consistent and reliable information about Air Force weapon systems and infrastructure. Mission costs are reported by system (aircraft, space systems, munitions, and some C3I) while infrastructure costs can be viewed by functional category (supply operations, mission operation, MILCON, etc.). Additionally, supply transaction detail (National Stock Number, MSD and GSD) is available for major aircraft and space systems as well as for many subsystems. Munitions and small missile expenditure costs can also be found in AFTOC. Cost details can be obtained by program element, appropriation, EEIC, and RC/CC to name a few. For registered users, AFTOC products are available on the Air Force Portal (https://www.my.af.mil/gcss-af/afp40/USAF/ep/index.do?command=application). The registration process for new user access is located in the applications section of the Air Force Portal. Current activities include completion of the data processing reengineering and MS reporting services for information presentation.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Richard Snow, (703) 602-9070; DSN 332-9070
Email: Richard.Snow@pentagon.af.mil

Performer: Battelle Memorial Institute, Northrop Grumman, and 309th Software Support Wing

Resources:

	FY	*Dollars*
Phase I	1998	$2.0M
Phase II & III	1999	$3.9M
Phase IV	2000	$3.7M
Phase V	2001	$3.6M
Phase VI	2002	$3.3M
Phase VII	2003	$3.0M
Phase VIII	2004	$2.9M
Phase IX	2005	$2.9M
Phase X	2006	$2.7M
Phase XI	2007	$2.7M
Phase XII	2008	$3.1M

Schedule:

	Start	*End*	
	Initial Development	Dec 1997	Complete
	Validation	Oct 2000	Complete
	Expansion	Oct 2001	Complete
	Reengineering	Oct 2002	Complete
	Revalidation	Dec 2003	Complete
	Enhancements	Oct 2004	Complete

Database: SQL Server 2005

Publications: Metadata files

Keywords: Government, Reviewing/Monitoring, Aircraft, Missiles, Space Systems, Infrastructure, Operations and Support, Data Collection, Database, Computer Model

AFCAA–3

Title: Air Force Inflation Model and Tutorial

Summary: This tool is used throughout the Air Force for making inflation conversion calculations and instructing personnel in the principles of inflation. It supports all cost analysis activities in AFCAA including aircraft weapon systems, computer, command and control, missile and munitions weapon systems, and space systems. A custom generator report feature and update to the tool for new inflation indices is contained in the model. The FY03 and FY04 efforts updated and upgraded the annual inflation indices as well as revised programming for compatibility with current updates of Excel and Microsoft Office. Development continued modifying the inflation tool to support custom report generating capabilities. The FY05 effort provided software programming support as well as updates to the inflation indices. The FY06 effort will provide updated and upgraded annual inflation indices as well as revised programming for compatibility with current updates of Excel and Microsoft Office. The FY07 effort continues to provide software program support, as well as, update and modernize the interface, incorporating new EXCEL and/or MS WINDOWS features as they become available and compatible with the Air Force standard desktop environment.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Stephen Connair, (703) 693-9347; DSN 223-9347
E-mail: Stephen.Connair@pentagon.af.mil

Performer:

FY 97–98	TASC
FY 99–07	Center for Systems Management, Inc.

Resources:

FY	*Dollars*
97	$41,000
98	$46,000
99	$20,000
00	$16,000
01	$16,000
02	$25,000
03	$16,000
04	$25,000
05	$16,000
06	$16,500
07	$26,200
08	$17,800

Schedule:

Start	*End*
Oct 96	On-going

Database: Excel

Publications: N/A

Keywords: Government, Estimating, Analysis, Database, Mathematical Modeling, Economic Analysis, Computer Model

AFCAA–4

Title: Cost Handbook Update

Summary: The objective of this effort is to update the Aeronautical Systems Cost Analysis Handbook. This will serve as a single, authoritative reference to foster methods and techniques for AF acquisition cost estimating. The update will ensure all references to Air Force and DoD policies, regulations, processes, and terminology are current, and that all references to cost analytical methods and terminology are current and widely accepted by the professional DoD acquisition and cost analytical communities.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0400
E-mail: Jay.Jordan@pentagon.af.mil

Performer: MCR Federal, Inc.

Resources:

FY	*Dollars*
05	$100,000
06	$157,000
07	$148,000

Schedule:

Start	End
Sep 05	Mar 08

Database: N/A

Publications: Final Handbook

Keywords: Government, Software, Data Collection, Estimating, Analysis, Method, Statistics/Regression, Mathematical Modeling, CER, Production, WBS, Spares/Logistics, Sustainability, Weapon Systems, Life Cycle

AFCAA–5

Title: Performance Activated COTS Electronics Relationships (PACER) (Formerly COTS Electronics Database/Modeling)

Summary: The Performance Activated COTS Electronics Relationships (PACER) Model is a series of cost estimating relationships enabling cost analysts to estimate commercial-off the-shelf (COTS) electronics prices using key performance characteristics. The tool provides CERs for many electronic components (e.g., processor and memory boards, A/D and D/A converter boards, input/output and receiver boards, power supplies and enclosures, servers and routers, workstations, etc.). The performance characteristics, taken from industry criteria, used as independent variables vary depending on the CER. For example, CERs may include processor capability metrics, memory type and size, board size, sampling rates, year on market, number of channels, rate, revolutions per minute, watts, temperature range, radiation hardening, vibration, shock, and many other continuous and discrete variables. The data underpinning the equations ranges in size but can include over a thousand distinct boards, in the case of the data/signal processor CER. The CERs are incorporated into a graphic user interface (GUI), built in Visual Basic, programmed into an Excel spreadsheet simplifying use in developing tool inputs. Applications include virtually all electronics systems COTS electronics, including avionics, AIS/C3I systems, and space-based electronics. In addition to routine technical and management services, a classroom training course is available. Technical reports document enhancements and

impacts and/or benefits to users, recommendations of continued improvement, limitations in applicability, validation and verification efforts, and step-by-step instructions. Analysts have used PACER to develop cost models to support decision reviews for a number of systems, to include ELMR, NCES, and recently JTRS Future efforts will continue necessary data collection, user community interface and support, tool maintenance and enhancement activities, and dedicated cost model development for identified acquisition programs.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Ethan Henry, (703) 604-0408; DSN 664-0408
E-mail: Ethan.Henry@pentagon.af.mil

Performer: PACER Corp.

Schedule:

Start	*End*
Sep 99	On-going

Database: Excel

Publications: Final Reports, CER Reports, V&V Report, Interactive User's Manual, Training Course

Keywords: Government, Estimating, Analysis, Life Cycle, Data Collection, Database, Mathematical Modeling, Statistics/Regression, Computer Model, Electronics, CER

AFCAA–6

Title: Force Analysis On-Site Analytical and Technical Analytical Support

Summary: The objective of this task is to provide skilled analytic and informational technology support services to assist with comprehensive activities as it relates to projecting long-term financial requirements including the assessment of acquisition, direct mission and indirect support costs, research, development and support to the Air Force Flying Hour Program; and weapons system fielding, sustainment, and support issues. In FY06, activities included maintenance and development of analytical databases and decision support tools; leading or participation in complex analytical studies pertaining to Cost per Flying Hour (CPFH) requirements for major weapon systems, contractor logistics support, performance-based logistics, and depot maintenance. Continuing into FY07, by developing life cycle cost models for SAF/AQ Mobility Division to compare various C-5 and C-15 force mix options, developed operational cost per aircraft charts and imported new data for PBM representing all of FY2006.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. John Wallace, (703) 692-6002; DSN 222-6002
E-mail: John.Wallace@pentagon.af.mil

Performer: LMI – FY06–FY07

Resources:

FY	*Dollars*
06	$632,000
07	$477,000

Schedule:

Start	*End*
July 06	Ongoing

Database: AFTOC

Publications: Draft Study/Annotated Briefing/Reports

Keywords: Government, Analysis, Spares/Logistics, Life Cycle, Sustainability, Data Collection, Database

AFCAA–7

Title: Aircraft Modification Cost Estimating Handbook

Summary: The objective of this effort is to develop a handbook for estimating the cost of aircraft modifications. The Aircraft Modification Cost Estimating Handbook shall provide clear guidance to mid-level cost analysts on developing cost estimates for aircraft modifications for a comprehensive work breakdown structure, including development, production, and operation and support. As part of this effort, the contractor shall draw upon, with government assistance, Air Force and Navy resources to assemble and deliver the most comprehensive aircraft modification cost and schedule database possible.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Scott Adamson, (703) 602-9317; DSN: 332-9317
E-mail: Scott.Adamson@pentagon.af.mil

Performer: Technomics

Resources:

FY	*Dollars*
06	$300,000
07	$150,000

Schedule:

Start	*End*
Mar 06	May 08

Database: N/A

Publications: Draft and Final Report

Categories: Government, Estimating, Analysis, Aircraft, Airframe, Propulsion, Electronics/Avionics, Spares/Logistics, Life Cycle, Labor, Overhead/Indirect, Material, Engineering, Manufacturing, Production Rate, Acquisition Strategy, Advanced Technology, Risk/Uncertainty, Integration, Schedule, Size, Software, Statistics/Regression, Handbook

Keywords: Government, Aircraft, Life Cycle, Modification

AFCAA–8

Title: Methods for Predicting Development/Production Costs

Summary: The objective of this effort is to update production contract pricing data from a previous effort, collecting development contract pricing data, and performing analyses on the weapon cost data (i.e., missiles, aircraft, spacecraft, etc.). The contractor updates development (or production) contractual pricing data (original contract and modification) for weapons systems programs, and normalizes the data. The contractor analyzes the development (or production) contractual modifications pricing data and develops factors and cost estimating relationships that describe the magnitude and various types of contract modifications that are levied on development contracts and will deliver this information in a well-documented and user friendly database.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Scott Adamson, (703) 602-9317; DSN: 332-9317
E-mail: Scott.Adamson@pentagon.af.mil

Performer: Technomics, Inc.

Resources:

FY	*Dollars*
05	$125,000
06	$122,000
07	$285,000

Schedule:

Start	*End*
Sep 05	Sep 06
Sep 06	Sep 07
Sep 07	On-going

Database: Access/Excel

Categories: Government, Analysis, Weapon Systems, Missiles, Munitions, Aircraft, Spacecraft, EMD, Production, Contracts, Modifications.

Publications: Final Report and Database

Keywords: Industry, Estimating, Analysis, Methodology, Statistics/Regression, Data Collection, Life Cycle, Database, Mathematical Modeling, CER

AFCAA–9

Title: Software Cost Estimating Handbook

Summary: The objective of this effort is to work jointly with the Naval Center for Cost Analysis (NCCA) and the Software Technology Support Center (STSC) to update the NCCA *Software Development Estimating Handbook*. The effort covers the review, validation, and normalization of the software project data in databases for use in the handbook efforts.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Wilson Rosa, (703) 604-0495; DSN: 664-0495
E-mail: Wilson.Rosa@pentagon.af.mil

Performer: STSC

Schedule:

Start	*End*
Feb 06	Ongoing

Database: N/A

Categories: Government, Analysis, Weapon Systems

Publications: Final Report

Keywords: Government, Estimating, Software

AFCAA–10

Title: Joint Information Technology Software Development Database

Summary: This is a joint military service effort between AFCAA, NCAD, and ASA-FM. It seeks to collect historical data on Information Technology software development. The initial effort's focus is on collection of historical data about Enterprise Resource Planning (ERP) initiatives in the Government, based on performance metrics unique to these emerging software products with their imbedded organizational structure and process implications. Once enough valid data is collected, the effort may develop statistical relationships between the performance metrics and resulting costs to fully implement ERPs. The planned horizon for the longer-term will expand the data collection, and possible mathematical relationship development, to other Automated Information Systems (AIS) development and implementation activities.

Classification: Unclassified

Sponsors: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Wilson Rosa, (703) 604-0395; DSN: 664
E-mail: Rosa.Wilson@pentagon.af.mil

Naval Center for Cost Analysis (NCCA)
Mr. Lee Lavinder, (703) 692-4891; DSN: 222
E-mail: carlton.l.lavinder@navy.mil

Dave Cashin, (703) 692-4884; DSN: 222
Assistant Secretary of the Army (ASA-FM)
Noel D. Bishop (703) 601-4165
E-mail: Noel.Bishop@hqda.army.mil

Performer: Software Technology Support Center (STSC)

Schedule:

Start	*End*
Aug 05	Ongoing

Database: N/A

Publications: Draft and Final Documentation

Categories: Software cost estimating

Keywords: Government, Software, Life Cycle, Database

AFCAA–11

Title: Space Database Improvement

Summary: The objective of this effort is to improve and expand AFCAA data collection, database efforts and estimating tools. The effort will maintain consistency with SMC, NRO and NASA.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Duncan Thomas, (703) 602-9265; DSN: 332-9265
E-mail: Duncan.Thomas@pentagon.af.mil

Performer: Government/MCR Federal LLC

Resources: Included in the Space Division On-site support contract

Schedule: On-going

Database: Access/Excel

Publications: Final Report

Keywords: Government, Space Systems, Database

AFCAA–12

Title: Engineering Change Proposal (ECP) Study

Summary: The objective of this effort is to quantify how much ECP/modification traffic is included in our Independent Cost Estimates (ICEs). The study investigates the causes and impact of contract growth, and recommends how to best capture this growth in space cost estimates.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency
Mr. Duncan Thomas, (703) 602-9265; DSN: 332-9265
E-mail: Duncan.Thomas@pentagon.af.mil

Performer: Government/MCR Federal LLC

Resources: Included in the On-site support contract

Schedule: Ongoing

Database: N/A

Publications: Final Report

Keywords: Government, Estimating, Space Systems, Study

AFCAA–13

Title: Satellite Schedule Model

Summary: This effort has 5 focus areas: Space-Segment Schedule Model predicts program milestones from Authority to Proceed to first launch; System Test Schedule Model predicts time to launch from beginning of system test; Payload Schedule predicts time period from payload design to build; PDR Schedule Model predicts time from ATP to PDR; CDR Schedule Model predicts time from ATP and PDR to CDR.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Duncan Thomas, (703) 602-9265; DSN: 332-9265
E-mail: Duncan.Thomas@pentagon.af.mil

Performer: Government/MCR Federal LLC

Resources: Included in the On-site support contract

Schedule: Ongoing

Database: Access/Excel

Publications: Final Report

Keywords: Government, Estimating, Space Systems, Mathematical Modeling

AFCAA–14

Title: NASA/Air Force Cost Model (NAFCOM)

Summary: This effort will improve the completeness and accuracy of cost estimates and allow the addition of several new features to NAFCOM (schedule estimate, operations cost estimating, time-phasing of cost, risk analysis, etc.).

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Duncan Thomas, (703) 602-9265; DSN: 332-9265
E-mail: Duncan.Thomas@pentagon.af.mil

Performer: Government/MCR Federal LLC

Resources: Included in the On-site support contract

Schedule: Ongoing

Database: Access/Excel

Publications: Final Report

Keywords: Government, Estimating, Space Systems

AFCAA–15

Title: Advanced Extremely High Frequency (AEHF) Cost Performance

Summary: This effort is intended to inform the Government of the contractor's cost performance capability in the context of national industrial cost performance capability and to establish realistic program funding for future satellite acquisitions.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Space Division
Mr. Duncan Thomas, (703) 602-9265; DSN: 332-9265
E-mail: Duncan.Thomas@pentagon.af.mil

Performer: Government/MCR Federal LLC

Resources: Included in the On-site support contract

Schedule: Ongoing

Database: N/A

Publications: Final Report

Keywords: Government, Estimating, Space Systems, Study

AFCAA–16

Title: Air Force Historical Aircraft Procurement Cost Archive (HAPCA)

Summary: A stand-alone gross obligation database consisting of the sum of net obligations and net expenditures by year at the P-1 budget category level going back to 1946 for quantities associated with each aircraft production lot. The database will have the capability to be imported into JCARD and AFTOC.

Classification: Unclassified

Sponsor: Air Force Cost Analysis Agency, Research & Resource Management Division
Mr. Richard Snow, (703) 602-9070; DSN: 332-9070
E-mail: Richard.Snow@pentagon.af.mil

Performer: Government/Battelle

Resources:

FY	*Dollars*
Sep 06	$171,000

Schedule: Ongoing

Database: Access/Excel

Publications: N/A

Keywords: Government, Aircraft, Database

Air Force Space and Missile Systems Center (SMC)

Name:	Air Force Space Command (AFSPC) Space and Missile Systems Center/Acquisition Cost Division (SMC/FMC)	
Address:	483 North Aviation Blvd., Los Angeles AFB, CA 90245	
Director:	Warren Carlson (GG-15) Director, Cost Estimating & Earned Value Division	
Size:	Professional:	16 – 12 Civilians, 4 Military
	Support:	4 – Aerospace
	Consultants:	0
	Subcontractors:	18 – MCR Federal and Tecolote Research Inc.
Focus:	Satellites, Launch & Range, and Network	
Activity:	Number of projects in progress:	6
	Average duration of a project:	varies
	Average number of staff members assigned to a project:	1–5
	Average number of staff-years expended per project:	approx. 1
	Percentage of effort conducted by consultants:	0%
	Percentage of effort conducted by subcontractors:	95%

SMC–1

Title: Unmanned Space Vehicle Cost Model 9th Edition (USCM 9)

Summary: USCM has been the Air Force's primary estimating tool for space vehicles since the 1970s. The latest version (USCM 8) was released in 2002. Research is currently ongoing to update the cost-estimating relationships (CERs) that comprise the model using new data and new methodologies. Existing database has been renormalized to reflect the new WBS. Current effort is focused on collecting data with emphasis on sensor payload. This upgrade will include sensor payload data (not available in previous versions) as well as enhanced tool capabilities.

Classification: Unclassified (Proprietary database separately bound)

Sponsor: SMC/FMC

Performer: Tecolote Research, Inc.

Resources:

FY	*Dollars*	*Staff-years*
2006	$954,760	5
2007	$983,470	5
2008	$1,012,981	5
2009	TBD	5

Schedule:

Start	*End*
Oct 2004	Jun 2009

Database:

Title: USCM 9 Database

Description: USAF, NASA, commercial satellite cost and technical data, along with technical descriptions of each satellite and its mission.

Automation: Model made available to authorized government users as a SQL server database.

Publications: Unmanned Space Vehicle Cost Model 8th Edition (June 2002)

Keywords: Government, Estimating, Space Systems, SD&D, Production, WBS, Data Collection, Mathematical Modeling, Statistics/Regression, Database, CER

SMC–2

Title: ECO Study

Summary: Many studies of cost growth in military programs have been done over the past 30 years. These studies have attributed cost growth to a variety of sources, among them optimistic estimation of program costs, beyond-state-of-the art technology needs, underestimation of software complexity, assumptions of optimistic learning rates, underestimation of integration and testing costs, impact of government-directed requirements changes, and others. Of these sources, the latter is believed to be very significant, but its impact has been difficult to measure and forecast. This research study proposes to study the sequence of engineering change orders (ECOs) accompanying SMC space-system contracts for information on cost growth due to requirements changes. ECOs will be collected and organized for a few programs (to start), and then will be organized according to their respective causes. Those associated with government-directed requirements changes will be totaled and expressed as a percentage of the initial contract baseline. If sufficient information is collected, it may be possible to develop CERs in certain cases for this source of cost growth.

Classification: Unclassified (portions of the database may be contractor-proprietary)

Sponsor: SMC/FMC

Performer: The Aerospace and SMC/FM SETA Support

Resources:

FY	*Dollars*	*Staff-years*
2006	$2,500	.01
2007	$50,000	.25
2008	$90,000	.75

Schedule:

Start	*End*
Jul 2006	May 2008

Database: *Title*: SMC ECO Database

Description: ECOs associated with SMC developed space systems, categorized by cause and dollar value

Automation: Excel-based database containing proprietary information and limited in distribution

Publications: Research

Keywords: Government, Estimating, Analysis, Space Systems, SD&D, Production, WBS, Data Collection, Mathematical Modeling, Statistics/Regression, Database, CER

SMC–3

Title: COSYSMO Calibration for SMC

Summary: Systems engineering continues to be a dominant component of the total cost of space system development, test, and production. Previous approaches for estimating the effort have led to mixed results. This research task uses SMC/USCM historical data to determine what adjustments in systems engineering activities and life cycle phases need to be made to the COSYSMO model for the SMC environment. The calibration process involves the piloting of COSYSMO on an exemplar SMC program to determine the customization necessary for future SMC use. Activities will include recommendations for the implementation of a systems engineering measurement program.

Classification: Unclassified

Sponsor: SMC/FMC

Performer: The Aerospace Corporation and SMC/FM SETA Support

Resources:	*FY*	*Dollars*	*Staff-years*
	2007	$60,000	.2
	2008	$75,000	.25
Schedule:	*Start*	*End*	
	Feb 07	Jun 08	
Database:	None		
Publications:	None		
Keywords:	Government, Estimating, Space Systems, SD&D, Study		

SMC–4

Title: SMC Cost/Schedule Reference Model (C/SRM)

Summary: The objective of C/SRM will be to provide greater Center-wide consistency with respect to cost and schedule estimating methodologies. C/SRM will be a single source for SMC approved/recommended cost and schedule methodologies for use on all SMC programs. It will provide a starting point for developing POEs, ICEs, and ICAs, as well as a means of disseminating the latest results of cost research. C/SRM will be implemented in ACE-IT, with associated libraries of CERs and attached information and research. The collection and organization of materials for the SMC Cost Library and the compilation of program histories on past and current SMC programs will also be accomplished as part of this effort.

Classification:	Unclassified		
Sponsor:	SMC/FMC		
Performer:	The Aerospace Corporation and SMC/FM SETA Support		
Resources:	*FY*	*Dollars*	*Staff-years*
	2008	$225,000	.75
Schedule:	*Start*	*End*	
	Apr 08	Sep 08	
Database:	ACE-IT model with associated data files.		
Publications:	Briefing		
Keywords:	Government, Estimating, Space Systems, Mathematical Modeling		

SMC–5

Title: "In Progress" Program Cost Methodology Study

Summary: The objective of this research will be to formulate a recommended Center-wide cost methodology for use on on-going programs. The parametric methods on which we tend to focus our research are mostly applicable to program new-starts and do not allow effective use of knowledge gained through experience with the actual contractor effort. Conversely, EACs calculated using EVM methods do not take into account recent changes to the technical and requirements baseline. This research will inventory current approaches to applying mixed parametric/contract actual methods as well as investigate other approaches focusing on the program schedule. Methodologies to assess the impacts of budget cuts and schedule stretch-outs will also be a part of this effort. The results will be incorporated into the SMC C/SRM.

Classification:	Unclassified		
Sponsor:	SMC/FMC		
Performer:	The Aerospace Corporation and SMC/FM SETA Support		
Resources:	*FY*	*Dollars*	*Staff-years*
	2009	$300,000	1.00

Schedule:	*Start*	*End*	
	Oct 08	Sep 09	
Database:	ACE-IT model with associated data files.		
Publications:	Briefing		
Keywords:	Government, Estimating, Space Systems, Method, Study		

SMC–6

Title:	Costs Associated with COTS Software Usage		
Summary:	COTS ("Commercial off the Shelf") has often been advertised as a lower-cost solution to the problem of satisfying space-system software needs. Now that several USAF space systems have a history of COTS software usage, it should be possible to verify whether or not COTS-based systems experience lower development (and maintenance) costs than do systems that have implemented the traditional software-development process. Additional costs beyond the licensing fees associated with COTS products include writing integration "glue code," testing COTS software for effectiveness and reliability, and re-doing the integration and testing cycle whenever a COTS product is upgraded by the vendor.		
Classification:	Unclassified		
Sponsor:	SMC/FMC		
Performer:	The Aerospace Corporation and SMC/FM SETA Support		
Resources:	*FY*	*Dollars*	*Staff-years*
	2009	TBD	.25
Schedule:	*Start*	*End*	
	FY09	FY09	
Database:	*Title*:	Costs Associated with COTS Software Usage	
	Description:	USAF space-system cost experience associated with implementation of COTS-based systems.	
	Automation:	None planned.	
Publications:	None		
Keywords:	Government, Estimating, Space Systems, SD&D, Production, Risk/Uncertainty, Software, Data Collection		

SMC–7

Title:	Space System Weight Growth Analysis		
Summary:	The focus of this study is to evaluate and analyze the amount of weight growth experienced by space systems. The initial emphasis will be on historical and on-going SMC programs. Mass properties will be collected at various program milestones including pre-contract award milestone decisions (Government design), contract award, PDR, CDR, and launch. The causes of the weight growth will be analyzed and documented as part of the study. Initial baseline cost estimates will be evaluated and updated with new mass property data to assess the cost impact of weight growth. The study will provide guidance to analysts in evaluating and modeling configuration uncertainty.		
Classification:	Unclassified, but database is contractor-proprietary		
Sponsor:	SMC/FMC		
Performer:	The Aerospace Corporation and SMC/FM SETA Support		
Resources:	*FY*	*Dollars*	*Staff-years*
	2009	TBD	.5
Schedule:	*Start*	*End*	
	2009	2009	

Database:	*Title*:	Space System Weight Growth Analysis
	Description:	Weight data collected at various milestones for USAF Space programs.
	Automation:	The database must remain proprietary and of limited distribution
Publications:	None	
Keywords:	Government, Estimating, Space Systems, Mathematical Modeling, Statistics/Regression, Database	

Electronic Systems Center (ESC)

Name:	Acquisition Cost Division, Comptroller, Electronic Systems Center	
Address:	11 Eglin Street, Hanscom AFB, MA 01731-2117	
Director:	Col Brian Shimel, (781) 377-5161	
	Dave Morana, Chief, Cost Estimating Division (781) 377-7492, DSN 478-7492 E-mail: dave.morana@hanscom.af.mil	
Size:	Professional: 10	
Focus:	The Acquisition Cost Division supports the Electronic Systems Center by providing independent analysis and verification of electronic systems cost to ESC leadership, with a focus on improving the overall quality, objectivity, and credibility of cost estimates. The Cost Division leads the Center's modern, quick-reaction cost tools program, as well as spearheading comprehensive cost training essential to ESC Wing/Group cost analysts and its program managers. The Cost Division's overall objective is to lessen the liability caused by excessive cost growth, while at the same time providing decision-quality cost analysis products to a wide range of customers across DoD.	
Activity:	Number of projects in process:	2
	Average duration:	1 year
	Average number of staff members assigned to a project:	4
	Average number of staff-years expended per project:	.5

ESC–1

Title: ESC Acquisition Support Cost Factors and Cost Estimating Relationships (CER)

Summary: The objective of the ESC Acquisition Support Cost Factors and CERs is continuous update of the cost factors and CERs for WBS level 2 acquisition cost elements such as SEPM, ST&E, Data, Training, and others. These factors and CERs are commonly used at ESC as an effort-bounding crosscheck to a primary methodology, but in some cases they are used as the primary estimating rough-order method early in programs before there is a more appropriate level of program definition. The last full update to the factors and CERs application method was in 2006. This effort is focused on creating a process of continuous improvement by centralizing data collection, mapping and normalizing recent cost data into a standard WBS, analyzing cost relationships and application methods, and publishing guidance on the application and uncertainty of the method to the ESC/FMC website to provide analysts access to the most recent data, documentation, and methodological improvements.

Classification: Unclassified

Sponsor: Acquisition Cost Division

Performer: ESC/FMC

Resources:

FY	*Dollars*	*Staff-years*
2008	50,000	.5

Schedule:	*Start*	*End*
	Feb 2008	Feb 2009

Database: ESC Cost Report Database

Publications: ESC/FMC Cost Website

Keywords: Government, Analysis, Estimating, Electronics/Avionics, SD&D, CPR/CCDR, Database, CER, Statistics/Regression

ESC–2

Title: Real Metrics for Effort Sizing

Summary: The rapid evolution of electronic systems technology, the lack of detailed technical and programmatic data collection, the complexity of modern acquisition strategies and a renewed emphasis on cost estimating in today's funding constrained environment have converged to challenge cost estimating methods as never before. Analysts need ready access to detailed data in a meaningful context. The shallow normalization of cost reports on tens or hundreds of programs no longer appears sufficiently descriptive of future programs. This project seeks to institutionalize data collection at ESC to include program-specific appropriate sizing methods for continuous methodological improvement rather than chasing outmoded input standardization. Cost Estimating Relationships will be defined for each program at the elemental level based upon realistic cost drivers with describable metrics.

Classification: Unclassified

Sponsor: Acquisition Cost Division

Performer: ESC/FMC

Resources:	*FY*	*Dollars*	*Staff-years*
	2008	50,000	.5

Schedule:	*Start*	*End*
	Feb 2008	Feb 2009

Database: ESC Real Metrics Database

Publications: TBD

Keywords: Government, Analysis, Estimating, Database, Software, Electronics/Avionics, Labor, Life Cycle

National Reconnaissance Office Cost Analysis Improvement Group (NRO CAIG)

Name:	NRO Cost Analysis Improvement Group (NRO CAIG)
Address:	15049 Conference Center Dr. Chantilly, VA 20151
Director:	Mr. Keith Robertson
Size:	Government 10 FFRDC 4 SETA 50
Focus:	Provide independent cost estimating support to NRO. Includes support to Milestone Decisions, Budget Submissions, Earned Value Management, ad-hoc Program Support, Data Collection, Methods Development, and Model/Tool Development.
Activity:	

NRO CAIG–1

Title: Space Cost Analysis Templates, Toolkits and Repository (SCATTR)

Summary: SCATTR is a web-based environment providing the tools, models, and methods necessary for the NRO CAIG to accomplish its mission. SCATTR consists of three primary functions:

1. Providing the user with data storage and retrieval tools;
2. Providing the user with tools for data analysis and model and methods development;
3. Providing the user with estimating and analysis tools.

The NRO CAIG has collected, normalized and documented a vast amount of cost, technical, and programmatic data on national security space system contracts and programs. These data can be as simple as top level reference points such as SEIT/PM factors as a percentage of prime mission equipment from a contractor cost report or as complex as an extensive listing of labor hours, labor dollars, material dollars, ODCs, general and administrative costs, and total dollar cost accounts for every WBS of a program. In addition, the NRO CAIG data includes technical and programmatic data such as schedules, standard datasheets, and documents describing subsystem and/or segment-to-segment interfaces, diagrams, and pictures. The data storage and retrieval subsystem of SCATTR houses all of these data types; provides the analyst with access and export features to use these data in further analyses; and provides a configuration control environment to assure accuracy of the data. SCATTR also provides access to NRO CAIG approved analysis, plotting, and robust statistical analysis tools.

Classification: Unclassified (classification of data changes the classification level)

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*

Dec 03 Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Data Collection, Database

NRO CAIG–2

Title: Advanced Cost Modeling Environment (ACME)

Summary: The Advanced Cost Modeling Environment (ACME) will provide the NRO CAIG an integrated, portable, cost estimating environment. ACME will support end-to-end estimation space systems through the use of configurable modules including, but not limited to, spacecraft bus hardware, payload hardware, flight software, ground system hardware and software, system engineering, integration & test and program management (SEIT/PM), launch vehicles and services, operations and maintenance (O&M) and other government costs (OGC).

Classification: Unclassified (classification of data changes the classification level)

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
Oct 08	Ongoing

Database:

Publications:

Keywords: Government, Estimating, Space Systems, Life Cycle, Mathematical Modeling, Database, Computer Model

NRO CAIG–3

Title: Software Database

Summary: NRO CAIG created a software database which automates the mapping of USC code count files and difference results to a CSCI/CSC and Work Breakdown Structure (WBS). Mapping would otherwise be time and labor intensive if done manually, since it is most meaningful when done at the lowest functional level of the WBS. Software database is primary tool for storing all NRO CAIG software related data. Database provides:

- Low level functional breakout
- Traceability to past programs
- Historical representation of development process
- Code Counts/Difference Results
- Staffing Profiles
- Discrepancy Reports (DRs)
- Schedules

Classification: Unclassified (classification of data changes the classification level)

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule: *Start* *End*
Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Software, Data Collection, Database, Computer Model

NRO CAIG–4

Title: NRO CAIG's Software Development Methodology

Summary: NRO CAIG uses an array of data and methodologies in estimating software costs for Space and Ground portions of NRO satellite systems. We have recently initiated a comprehensive review of all data collectively to see where, and if, trends can be found and to ultimately improve our software estimating process. The following areas are being addressed:

- Diff Results: Develop trends for reuse; develop new ESLOC calculation or equivalency; determine how to use diff results for estimating. Analyze complexity indictors; evaluate whether complexity ties to productivity.
- Staffing Profiles: Develop trends; align with schedule dates and LOC to develop CERs.
- Deficiency Reports: Evaluate whether DRs align with productivity.
- Productivities: Evaluate productivities for factors/ranges.
- NAVAIR (OSD) Model: Evaluate model to determine whether data points can be used in NRO CAIG methodology development. Access similarity/differences of NAVAIR and NRO CAIG productivity factors and trends. Communicate models usages and shortfalls.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources: *FY* *Dollars* *Staff-years*

Schedule: *Start* *End*
Feb 08 Ongoing

Database:

Publications:

Keywords: Government, Estimating, Analysis, Life Cycle, Software, Data collection, Method

NRO CAIG–5

Title: Complexity Based Risk Analysis (CoBRA)

Summary: Evaluate the utility of the Complexity Based Risk Analysis (CoBRA) methodology to NRO systems. Develop complexity model for use in "substantiating" the relative cost of a new system compared to historical system(s). For example, cost is 50% higher than legacy because it is a 50% more complex system. Study complexity as a function of time for NRO, DOD, NASA, and Commercial systems. Assess the complexity/$ changes over time—is bang for the buck increasing? Compare NRO complexity to DOD, NASA, Commercial. This study leverages the extensive work already published by The Aerospace Corporation.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG, Aerospace

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
Jan 07	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Data Collection, Computer Model

NRO CAIG–6

Title: Demonstration-Satellite Cost Model (DSCM)

Summary: A parametric cost model for technology demonstration satellites of all sizes. DSCM is a subsystem level parametric model for estimating bus cost, electro-optical payload cost, RF payload cost, satellite SEITPM cost, and overall development schedule. DSCM results are used to assess the cost-effectiveness of the small-sat paradigm when extended to mid-size and larger demonstration programs.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY07	FY08

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Data Collection, Computer Model

NRO CAIG–7

Title: Satellite Sizing Model

Summary: The overall scope of this task is to provide a model that can roughly size spacecraft according to mission type and payload performance parameters. The study is an investigation of how payload size, weight, and power impact bus weight, power, thermal, and other subsystems. Results will be used to assess risk in early-phase satellite designs.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
Mar 08	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Data Collection, Computer Model

NRO CAIG–8

Title: Commercial Acquisition Programs Study (CAPS)

Summary: The scope of this effort is to research the costs and technical data of "Purely Commercial" and "Commercial-Like" space acquisition programs. For the purpose of this study "Purely Commercial" is defined as programs that are procured by a non-U.S. government organization. "Commercial Like" is defined as programs that either: use a commercial bus; are acquired via a fixed price with delivery on orbit contract; and/or, are procured via a fixed price production contract.

A goal of the study is to develop cost estimating methodologies to support program estimates for "Purely Commercial" and "Commercial Like" acquisition programs. A product of this task will be estimating guidance and/or a spacecraft-specific subsystem-level cost model.

Classification: Unclassified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY07	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Data Collection, Acquisition Strategy, Study

NRO CAIG–9

Title: Space System Data Collections

Summary: Collect and normalize multiple space system data points (space HW/SW, ground HW/SW, SEITPM)

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Data Collection, Database

NRO CAIG–10

Title: Space Hardware CERs

Summary: Goal: The NRO CAIG CER Working Group has been developing a new set of satellite box-level CERs since April 2004. These CERs are based on a mix of data from NRO programs and from the Air Force's Unmanned Satellite Cost Model (USCM) dataset. CERs make use of newly collected and validated data and ensure latest technology is represented in NRO CAIG cost models.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY04	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Mathematical Modeling, CER

NRO CAIG–11

Title: NRO Subsystem Cost Model

Summary: NRO CAIG has developed a subsystem-level cost model based on a mix of data from NRO, DoD, and NASA space systems. Because the NRO CAIG relies primarily on box-level estimating methods, this subsystem-level model will be used for estimate cross-checks and as a basis for several studies. It establishes the government "baseline costliness" for comparison to demo-satellite costs (e.g., in DSCM) and to commercial-satellite costs (e.g., in CAPS).

Classification: Unclassified (some underlying data are classified)

Sponsor: NRO CAIG and DNI CAIG

Performer: NRO CAIG and DNI CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY06	FY08

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Mathematical Modeling, CER

NRO CAIG–12

Title: Ground System Cost Model

Summary: The NRO CAIG and The Aerospace Corporation are collaborating in the development of the Ground System Cost Model (GSCM). GSCM will be used to develop ROM cost estimates for satellite ground systems by calibrating a suite of existing CERs to cost and technical profiles of actual programs. Preliminary results have been completed in FY08, and research will continue to add/calibrate more programs to the supporting database.

Classification: Unclassified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Data Collection, Computer Model

NRO CAIG–13

Title: System Engineering, Integration, Test, and Program Management (SEITPM) Study

Summary: The NRO CAIG is developing new methods and models for estimating SEITPM costs for space and ground systems. Models are based on parametric analysis of historical data, including costs, headcounts, labor rates, and programmatic descriptors. This multi-year study is addressing results at various WBS levels in the following phases:

- Phase I: Electro-optical payload SEITPM (completed)
- Phase II: Communications and SIGINT payload SEITPM (completed)
- Phase III: Satellite-level SEITPM (Completed)
- Phase IV: System-level SEITPM (ongoing)
- Phase V: Ground-system SEITPM (ongoing)

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY06	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Data Collection, CER

NRO CAIG–14

Title: Scheduling and Phasing Model

Summary: The NRO CAIG has developed parametric models for estimating satellite development schedules and budget profiles. Models are based on an extensive historical database of NRO, DoD, and NASA programs. While supporting databases are continually updated to support estimates and ad-hoc studies, models have been completed in the following areas:

- Total satellite development schedule
- Satellite test schedule
- Payload development schedule
- Satellite budget profile
- Ground-segment budget profile

Classification: Unclassified (some supporting data are classified)

Sponsor: NRO CAIG and Air Force Cost Agency

Performer: NRO CAIG

Resources:	*FY*	*Dollars*	*Staff-years*
	2008		
	2009		

Schedule:	*Start*	*End*
	FY03	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Data Collection, Mathematical Model

NRO CAIG–15

Title: Box vs. Subsystem Estimating Accuracy

Summary: The NRO CAIG uses box-level parametric models and analogy methods for most ICEs to gain insight into costs and design risks at a low level. This study is investigating the accuracy of box-level methods compared to subsystem-level methods, which are less precise but not necessarily less accurate. All methods and supporting data come from the same NRO CAIG database, which promotes a comprehensive and consistent comparison.

Classification: Classified

Sponsor: NRO CAIG and DNI CAIG

Performer: NRO CAIG and DNI CAIG

Resources:	*FY*	*Dollars*	*Staff-years*

Schedule:	*Start*	*End*
	FY07	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Data Collection, Study

NRO CAIG–16

Title: Optical Payload Cost Models

Summary: The NRO CAIG is updating its primary cost models for electro-optical payloads by combining NRO data with cost and technical data from NASA and DoD programs where applicable. A new cost model for focal planes has been completed, based on data and recent experience in developing state of the art sensors. A second model for estimating optical telescope assemblies is currently in development – a database of 48 small, medium, and large telescopes is being compiled.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:	*FY*	*Dollars*	*Staff-years*

Schedule:	*Start*	*End*
	FY06	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Size, Mathematical Model, CER

NRO CAIG–17

Title: Ground Methods Development

Summary: The NRO CAIG is working to improve Ground and O&M Estimating techniques/methods/models/data collection. By continuing to collect and analyze ground system data points, we are researching new methods and metrics and investigating alternative approaches to ground system estimating.

Classification: Classified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY07	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Data Collection, Database

NRO CAIG–18

Title: NRO Inflation Index

Summary: The NRO CAIG developed and began using NRO inflation indices in 2004. The NRO inflation indices (raw and weighted) are based on actual labor, material, and other direct costs experienced by major NRO contractors on NRO programs. Current studies in partnership with SAF/FMC are focused on the impact of productivity and are expected to improve our indices to better reflect the Government's cost of doing business.

Classification: Unclassified

Sponsor: NRO CAIG

Performer: NRO CAIG

Resources:

FY	*Dollars*	*Staff-years*

Schedule:

Start	*End*
FY04	Ongoing

Database:

Publications:

Keywords: Government, Analysis, Space Systems, Life Cycle, Data Collection, Mathematical Model

The Aerospace Corporation

Name:	Acquisition and Planning Subdivision, The Aerospace Corporation
Address:	2350 E. El Segundo Blvd., El Segundo, CA 90245 Mail: M4-929, P.O. Box 92957, Los Angeles, CA 90009-2957
Director:	Rosalind Lewis, Principal Director Email: Rosalind.Lewis@aero.org (310) 336-1805
Size:	Professional: 70 Support: 4
Focus:	Space-system cost modeling and estimating, relationship between requirements and cost, cost-risk analysis, commercial practices, statistical issues in cost analysis, schedule analysis, cost/schedule/performance/design/ architecture trade studies.
Activity:	Number of internal research projects in process: 2 Average duration of a project: yearly funding Average number of staff members assigned to a project: 2 Average number of staff-years expended per project: 1.0

AEROSPACE–1

Title: Ground System Cost Model

Summary: The Aerospace Corporation is completing an effort to develop a general purpose satellite ground system cost model. Ground system acquisitions span the gamut from a few new "plug-in" pieces for an existing ground system, such as processing and mission management upgrades, to an entire ground system built from scratch. Therefore, a modern ground system cost model should be flexible to estimate the cost of any desired configuration.

This effort leveraged existing work to develop a consistent Work Breakdown Structure (WBS) with a default set of new and existing Cost Estimating Relationships (CERs) mapped into this WBS. Future work associated with this research will be to add more CERs. The model is designed to accept an unlimited set of new algorithms. Also accomplished under this IRAD is the creation of "Profiles," ground system descriptions that can calibrate CERs. In this way, a user has assurance that the results are tied to real analogous-program cost data.

Classification: Unclassified

Sponsor: The Aerospace Corporation, Internal Research and Development (IRAD)

Performer: The Aerospace Corporation, Engineering and Technology Group, Systems Engineering Division

Resources:

FY	*Dollars*
2006	0.5 MTS-years
2007	0.8 MTS-years
2008	0.8 MTS-years

Schedule:

Start	*End*
Mar 2006	Sep 2008

Database: None.

Publications: Briefing to SSCAG.

Keywords: Government, Estimating, Space Systems, Life Cycle, Production, WBS, Data Collection, Mathematical Modeling, CER

AEROSPACE–2

Title: Small Satellite Cost Model (SSCM)

Summary: In recent years, NASA, the Air Force, and commercial industry have increasingly funded and developed small satellite missions. In response to this trend, the Small Satellite Cost Model (SSCM) was developed. SSCM is used to evaluate the costs associated with designing, building, and testing small satellites. The model estimates the first-unit development and production cost of a spacecraft bus by using parametric CERs derived from actual small satellite cost and technical information. SSCM is updated as more data is obtained on the most recently launched small satellite missions to keep the model relevant for the estimation of small satellites.

Classification: Unclassified

Sponsor: The Aerospace Corporation, Engineering Methods (EM)

Performer: The Aerospace Corporation, Engineering and Technology Group, Systems Engineering Division

Resources:

FY	*Dollars*
Yearly	0.25 to 0.33 FTE

Schedule:

Start	*End*
Early 1990s	Ongoing

Database: 100+ technical, programmatic, and mission parameters, plus cost information, on over 100 small satellites.

Publications: E. Mahr and G. Richardson, "Development of the Small Satellite Cost Model (SSCM) Edition 2002," 2003 IEEE Aerospace Conference Proceedings, March 8–15, 2003.

D. A. Bearden et al., "Comparison of NEAR Costs with a Small-Spacecraft Cost Model," AIAA/USU Conference on Small Satellites, September 16–19, 1996.

R. Kellogg, E. Mahr and M. Lobbia, "An Analogy-based Method for Estimating the Costs of Spacecraft," 2005 IEEE Aerospace Conference Proceedings, March 5–12, 2005.

T. Mosher et al., "A Comparison of NEAR Actual Spacecraft Costs with Three Parametric Cost Models," *Acta Astronautica*, vol. 45, nos. 4-9, pg. 457–464, 1999.

Keywords: Government, Industry, Data Collection, Mathematical Modeling, Statistics/Regression, CER, Space Systems, Estimating

The MITRE Corporation

Name:	The MITRE Corporation Center for Acquisition and Systems Analysis (CASA)	
Address:	7515 Colshire Drive McLean, Virginia 22102-7539	
Director:	Barbara Moran and Mike Janiga	
Size:	Professional: 256 Support: 8 Consultants: 0 Subcontractors: 0	
Focus:	CASA provides support to numerous Federal Governmental sponsors in the fields of cost analysis, financial management, acquisition, program management, risk analysis, decision analysis, modeling and simulation, and portfolio management.	
Activity:	Number of projects in process: Average duration of a project: Average number of staff members assigned to a project: Percentage of effort conducted by consultants: Percentage of effort conducted by subcontractors:	200+ 6 to 12 months 1 to 2 0 0

MITRE–1

Title: Review and Assess Applicability of the International Software Benchmark Repositories

Summary: The purpose of this investigation is to review and report on the three data repositories made available through the International Software Benchmarking Standards Group. The three data repositories consist of the following: Software Development and Enhancement; Software Maintenance and Support; and Software Package Acquisition and Implementation.

Classification: Unclassified

Sponsor: The MITRE Corporation

Performer: David Paulson

Resources:

FY	*Dollars*	*Staff-years*
2008	$10,000	0.07

Schedule:

Start	*End*
Jan 2008	Aug 2008

Database: In progress

Publications: None

Keywords: Industry, Reviewing/Monitoring, Software, Survey, Review

MITRE–2

Title: Economic Information Design Forecasting

Summary: A concerted push to improve information sharing is underway within the DoD. Elements of this effort include: (1) the Net-Centric Data Strategy (NCDS) and the establishment of a Community of Interest (COI) approach to solve information sharing problems, (2) net-centric metrics for programs and an examination of solutions (e.g., SOA) to increase agility, (3) the establishment of Capability Portfolio Management (CPM) processes designed to eliminate data stovepipes and account for trade-offs in managing acquisition, and (4) the Senior Enterprise Services Governance Group (SESGG), a DoD/IC partnership, investigation into a Universal Core information standard.

This MITRE Innovation Grant (IG) examines the economic theory of information sharing, case studies and research on the standards setting process, game theory relevance to maximizing information sharing outcomes, lessons from the field of software cost measurement, and econometric techniques for mathematical analysis of bartering and commodity exchange patterns.

Classification: Unclassified

Sponsor: The MITRE Corporation

Performer: Robert Miller, Dan Winkowski, and Raj Agrawal

Resources:

FY	*Dollars*	*Staff-years*
2008	$20,000	0.14

Schedule:

Start	*End*
Mar 2008	May 2008

Database: In progress

Publications: None

Keywords: Government, Analysis, Infrastructure, Software, Case Study

MITRE–3

Title: Adapting Venture Capital Concepts to System Acquisitions

Summary: The goal of this research is to contribute a strategic, forward-looking view of enterprise systems acquisition. Specifically, the research objectives are to explore venture capital (VC) approaches and determine whether and how they can be used to improve the acquisition of enterprise systems in the federal arena, and to develop and pilot elements or an enterprise systems acquisition model.

Classification: Unclassified

Sponsor: The MITRE Corporation

Performer: Renee Stevens, Margaret King

Resources:

FY	*Dollars*	*Staff-years*
2008	$500,000	3.5

Schedule:

Start	*End*
Oct 2007	Sep 2008

Database: In progress

Publications: None

Keywords: Industry, Policy, Study

RAND Corporation

Name:	RAND Corporation Note: RAND cost analysts are part of the research staff and also work on other, non-cost research projects within all of RAND's FFRDCs (Project Air Force, Arroyo Center, and National Defense Research Institute). All published RAND documents can be down loaded from WWW.RAND.ORG	
Address:	Main Office: 1700 Main Street, Santa Monica, CA 90407-2138	
	Washington Office: 1200 South Hayes Street, Arlington, VA 22202-5050	
Director:	Obaid Younossi, Ph.D. (703) 413-1100 Ext. 5235	
Size:	Professional: 10 Support: 0 Consultants: 0 Subcontractors: 0	
Focus:	The purpose of this multi-year project is to conduct a number of studies related to developing better cost estimating tools for use by the acquisition community, examine the effects of DoD policies as they impact weapon system costs, and establish a Center of Excellence for Cost Analysis at RAND. The initial direction was to concentrate on military aircraft costing, so the results could be used as part of the Joint Strike Fighter deliberations in 2001. Later, the focus was to shift to unmanned air vehicles, space systems, and universal costs such as software, testing,, systems engineering/ program management costs, sustainment and contractor logistics support, operating and support costs, as well as weapon system cost growth analyses.	
Activity:	Number of projects in process:	8
	Average duration of a project:	1–2 years
	Average number of staff members assigned to a project:	1–4
	Average number of staff-years expended per project:	0.5 to 3
	Percentage of effort conducted by consultants:	0%
	Percentage of effort conducted by subcontractors:	0%

RAND–1

Title:	Lessons Learned on Technology Transition from ACTDs to Formal Development Programs
Summary:	The purpose of this research is to review and summarize the literature on lessons learned on the transition of technology from ACTDs to formal development programs.
Classification:	Unclassified
Sponsor:	Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211 with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor
	Air Force Cost Analysis Agency, Research and Resource Management Division Mr. Jay Jordan, (703) 604-0400; DSN 664-0451 E-mail: Jay.Jordan@pentagon.af.mil
Performer:	Mark Lorell, Robert Leonard, Michael Boito
Resources:	Approximately one-half staff year for FY 2008

Schedule: *Start* *End*
Oct 2007 Sep 2008

Database: None

Publications: None

Keywords: Industry, Analysis, Review

RAND–2

Title: Cost Estimates at Milestone B: A Comparison with Program Baselines

Summary: For this project, we analyze different credible estimates of the development and procurement cost of major weapon systems, and compare them to the "official" Program Baseline estimates listed in the Selected Acquisition Reports (SARs). Those different estimates for each program – a program office position, a service cost position, and an OSD CAIG position – are directly compared to the reconciliation of the estimates prepared by the Milestone Decision Authority (MDA). For ACAT I-C programs, the MDA is the service acquisition executive; for ACAT I-D programs, the MDA is the Defense Acquisition Board (DAB). The main question is whether program office estimates, service cost positions, and OSD CAIG estimates are substantially different from one another or from the reported SAR Program Baseline estimate. How large are the differences, in percentage terms? Is there a trend? How does the variability in estimates compare to the difference between the estimates and actuals? How much could cost growth be reduced if the most pessimistic estimate were selected as a SAR baseline?

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211 with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Robert Leonard and Kevin Brancato

Resources: Approximately one-half staff year for FY 2008

Schedule: *Start* *End*
Oct 2007 Sep 2008

Database: Yes

Publications: Research Ongoing

Keywords: Government, Estimating, Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–3

Title: Estimating the Impact of Avionic System Complexity on Integration Costs

Summary: The purpose of this project is to both review current and assess new methods to account for the impact of technical and organizational structure of a system on its development phase, specifically the integration process. Historically parametric cost analysis has focused on easily quantifiable metrics such as weight, speed, material, power, frequency, size, etc., to predict cost. While these are still useful, they often don't adequately capture the cost effects of increasingly complex systems. In the development of aerospace and defense systems, the impact increasing technical sophistication manifests itself primarily in the systems integration function. Systems integration is an outstanding issue for cost estimators; the process has not been well studied in terms of understanding what drives cost and time. We seek to develop measures to define this impact, assess their usefulness, and explore how they may be incorporated into current cost forecasting practice. This

research will attempt to quantify facets of both the architecture of the systems as well as the process in which integration occurs that may be correlated with integration efforts. Our focus will be on the avionics systems of defense programs.

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division, Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Ian Cook

Resources:

Schedule:

Start	*End*
Nov 2007	Sep 2008

Database: None

Publications: Research Ongoing

Keywords: Government, Estimating**,** Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–4

Title: Why Has the Cost of Fixed-Wing Aircraft Risen?

Summary: In recent decades, cost escalation for military fixed-wing aircraft of all types has exceeded that of commonly used inflation indices, including the Consumer Price Index, the Department of Defense procurement deflator, and the Gross Domestic Product deflator. A relatively fixed investment budget (albeit one with cyclical variations) means that the Services must somehow accommodate higher unit costs. This accommodation may mean buying fewer aircraft than in the past or it may mean reprioritizing budgets between acquisition and operations and support. This research explores the causes of this unit cost escalation, including both economy-driven factors that the Services cannot control and customer-driven factors that they can.

Classification: Unclassified

Sponsor: Assessment Division, Office of the Chief of Naval Operations (OPNAV N81) and Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211 with Mr. Arthur Barber and Mr. Jay Jordan, (AFCAA/TD) as Technical Monitors

Performer: Mark V. Arena, Obaid Younossi, Kevin Brancato, Irv Blickstein, and Clifford A. Grammich

Resources: Undisclosed

Schedule:

Start	*End*
Jan 2006	Sep 2007

Database: None

Publications: Why Has the Cost of Fixed-Wing Aircraft Risen?, MG-696-NAVY/AF, forthcoming

Keywords: Government, Estimating**,** Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–5

Title: Improving the Cost Estimation of Air Force Space Systems: Past Lessons and Future Recommendations

Summary: Why have the costs of acquiring space systems been so high? What are the sources of the problem? To answer these questions, RAND undertook an extensive study of two space systems—the Space Based Infrared System–High (SBIRS) and the Global Positioning System (GPS). Although some cost growth is unavoidable, much of it stemmed from cost-estimation errors, particularly in "Total System Performance Requirements" contracts, under which the contractor proposes technical solutions and is responsible for implementing them with minimal government oversight and direction. The researchers found that some risk assessments had not been entirely objective and suggest that such work is better done by independent teams of experts. Major reviews and estimates should be led by experienced and qualified government analysts, not by contactor support staff. Special emphasis needs to be placed on assessing technical risk, because good cost assessment depends on accurate technical input.

Classification: Unclassified

Sponsor: Lt. Gen Michael Hamel, SMC Commander with Col. Delane Aguilar, SMC/FM

Space and Missile Systems Center, 310-653-1894 as the technical monitor

Performer: Obaid Younossi, Mark A. Lorell, Kevin Brancato, Cynthia R. Cook, Mel Eisman, Bernard Fox, John C. Graser, Yool Kim, Robert S. Leonard, Shari Lawrence Pfleeger, Jerry M. Sollinger

Resources:

Schedule:

Start	*End*
2006	2007

Database: None

Publications: Improving the Cost Estimation of Air Force Space Systems: Past Lessons and Future Recommendations, MG-690-AF, forthcoming

Keywords: Government, Estimating**,** Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–6

Title: F-22A Multiyear Procurement Program

Summary: The U.S. Air Force is in the process of awarding a multiyear contract for 60 F-22A aircraft over three years. Congress specifically asked for a comparison between multiyear procurement of 60 F-22A aircraft with associated engines and three single-year contracts for 20 aircraft and engines. Second, it wanted to know how the F-22A multiyear contract compared with savings estimates for other multiyear aircraft contracts dating back to 1982. To answer these questions, RAND researchers identified three tasks: 1) Estimate the costs of buying 60 aircraft and associated engines (including spares) under single-year contracts at the rate of 20 aircraft per year; 2) Substantiate contractor-proposed savings, and compare them with the difference between multiyear negotiated prices and single-year estimates; 3) report the cost savings resulting from historical and ongoing aviation-related (aircraft and aircraft engines) multiyear procurement contracts back to FY 1982. In sum, we found that examining the issue of multiyear savings using several approaches produces a consistent range of results, and they indicate that the savings attributed to the multiyear contract by the contractors appear to be reasonable.

Classification: Unclassified

Sponsor: Mr. David Hersh, OSD-ATL

Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 703-697-3619

Performer: Obaid Younossi, Mark V. Arena, Kevin Brancato, John C. Graser, Benjamin W. Goldsmith, Mark A. Lorell, Fred Timson, Jerry M. Sollinger

Resources:

Schedule:

Start	*End*
Oct 2006	May 2007

Database: None

Publications: F-22A Multiyear Procurement Program: An Assessment of Cost Savings, MG-664, 2007

Keywords: Government, Estimating**,** Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–7

Title: Assessing Management Alternatives for F-22 Sustainment

Summary: The Air Force planned to contract with Lockheed Martin as the Product Support Integrator (PSI) to manage weapons system sustainment for the F-22 air vehicle, and Pratt & Whitney to fulfill the same role for the F119 engine. (The contracts would continue the current sustainment approach which uses public-private partnerships, in which most of the depot repair work is managed by the contractors but is performed in Air Force depots.) Before the Air Force could award such contracts to the prime vendors, it was required by Public Law 105-261, section 346 to perform a cost-benefit analysis to demonstrate that the proposed approach would yield savings over an organic sustainment strategy. RAND conducted the cost-benefit analysis and the results are documented in this report.

Classification: Unclassified //Proprietary/FOUO

Sponsor: Maj Gen Riemer, AFPEO F-22

Technical Monitor: Sue Dryden, Director of Sustainment and Logistics, F-22 Program Office, Aeronautical Systems Center, Wright-Patterson Air Force Base, Ohio, (937) 255-9694
E-mail: Sue.Dryden@wpafb.af.mil

Performer: Cynthia R. Cook, Michael Boito, John C. Graser, Edward G. Keating, Ian P. Cook

Resources: Approximately two and a half staff years for FY 2007

Schedule:

Start	*End*
Apr 2007	Dec 2007

Database: None

Publications: Assessing Management Alternatives for F-22 Sustainment (limited distribution), DRR-4448-2-AF, 2008

Keywords: Government, Analysis, Aircraft, Propulsion, Economic Analysis

RAND–8

Title: F-22A Post-Multiyear Procurement Options

Summary: A follow-on to RAND's *F-22A Multiyear Procurement Program: An Assessment of Cost Savings* (MG-664), the purpose of this research is to explore the costs and industrial base impacts of the procurement options the US Air Force will face after multiyear procurement of F-22A ends in FY2009. There are four courses of action: shutdown, shutdown and planned restart, production at low rates, and continued production at current rates. The program activities necessary to follow each course of action are

identified, and a low, likely, and high range of associated costs for each activity are estimated. Procurement costs are estimated using a quantity-adjusted cost-improvement-curve model. This model was modified for loss-of-learning effects of shutdown and restart through reanalysis of data first gathered in RAND's *Reconstituting a Production Capability* (MR-273). Comparison of procurement costs of an equal number of aircraft under the shutdown and restart, low rate production, and continued production scenarios is performed. The industrial base assessment used subjective classification to determine the extent and range of difficulties that might be faced by suppliers during a shutdown and restart. Additionally, the impacts to the F-22A sustainment and modernization programs were assessed qualitatively.

Classification: Unclassified

Sponsor: Maj Gen Jeffrey R. Riemer, AFPEO F-22

F-22 Program Executive Office
Maj Gen Jeffrey R. Riemer, (703) 588-7300
E-mail: jeff.riemer@pentagon.af.mil

Performer: Obaid Younossi, Kevin Brancato, John C. Graser, Tom Light

Resources: Approximately two staff years for FY 2008

Schedule:

Start	*End*
Sep 2007	June 2008

Database: None

Publications: F-22A Post Multiyear Procurement Options, draft, forthcoming

Keywords: Government, Estimating, Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–9

Title: Exploring the Sources of Weapons System Cost Growth

Summary: The purpose of this research is to refine RAND's previous work in weapon system cost analysis by developing a deeper understanding of the causes of cost growth on Major Defense Acquisition Programs (MDAPs). By better understanding the causes of cost growth, one can hope to improve the estimating and funding process by potentially identifying (a) areas where the cost estimating process needs improvement and (b) potential sources and magnitude of cost risk. The SARs do provide some quantitative information on the differences between the baselines and current estimates through cost variance categories. These categories quantify cost growth in seven change areas: economic, quantity, schedule, engineering, estimating, support, and other. While these categories are useful for normalization purposes (particularly quantity and economic changes), the categories have been criticized for not addressing the real causes of change. For example, a quantity change can be caused by several reasons, such as funding cutbacks, efforts to keep the total acquisition cost within a certain limit (e.g., when development costs grow), or a change in requirements. There has also been some criticism that the allocation of growth to the various categories is inconsistent between programs.

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211 with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Joseph Bolton, Robert Leonard, Mark Arena, Obaid Younossi

Resources: Approximately two staff years for FY 2005

Schedule: *Start* *End*
Oct 2004 Dec 2006

Database: None

Publications: Sources of Weapon System Cost Growth: Analysis of 35 Major Defense Acquisition Programs, MG-670-AF, 2008

Keywords: Government, Industry, Risk/Uncertainty, Estimating, Reviewing/Monitoring, Study

RAND–10

Title: Contractor Logistics Support

Summary: The objective for this project is to examine the policy and cost implications of the use of contractor logistics support (CLS) for Air Force weapon systems, and to make recommendations for acquisition policy and cost estimating procedures for CLS based on the findings. The research plan involves a literature review, participation on the AF/IL CLS IPT and/or interviews with government and contractor (if available) officials, and collection and analysis data available on CLS programs, and, if possible, several in-depth case studies.

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211 with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Michael Boito, Cynthia Cook, John C. Graser

Resources: Approximately two staff years for FY 2005

Schedule: *Start* *End*
Oct 2005 Dec 2006

Database: None

Publications: Contractor Logistics Support in the USAF: Issues and Recommendations, DRR-4235-AF

Keywords: Government, Industry, Risk/Uncertainty, Estimating, Reviewing/Monitoring, Study

RAND–11

Title: Unmanned Air Vehicles Life Cycle Cost Estimating: Issues and Challenges

Summary: The overarching objective of this research project is to assist the Air Force Cost Analysis Agency (AFCAA) in developing improved cost analysis policies and approaches specifically optimized for application to Unmanned Air Vehicle (UAV) programs. The basic question this research will address is: to what extent are UAVs a separate class of system for which traditional aircraft Life Cycle Cost (LCC) estimating methods are not sufficient? This project is divided into two phases. Phase I (FY2005) has three tasks: (1) surveying existing UAV cost analysis approaches and models; (2) developing a taxonomy of UAV system categories relevant to cost analysis issues; and (3) identifying and clarifying key UAV-unique issues and program characteristics (if any) that impact the development of improved cost estimating models for UAV programs. Phase II (FY2006) will be defined in detail in conjunction with the sponsor, once the findings of Phase I are available. At this time, we anticipate that Phase II will have two principal tasks. The first will focus on identifying, collecting, and assessing historical and analogous cost data relevant to UAV programs. The second task will aim at applying our

research findings to assist in the development and refinement of improved UAV cost estimating policies and methodologies.

Classification: Unclassified

Sponsor: SAF/AQ with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Kevin Brancato, Yool Kim, Mark Lorell

Resources: Approximately one staff year for FY 2005

Schedule:

Start	*End*
Oct 2004	Oct 2005 (Phase I)
Oct 2005	Jun 2007 (Phase II)

Database: Proprietary

Publications: None

Keywords: Government, Estimating, Weapon Systems, Aircraft, Acquisition Strategy, Study

RAND–12

Title: Analysis of Cost Growth using Selected Acquisition Reports

Summary: This is a continuing effort to maintain and update the RAND DoD Selected Acquisition Reports (SAR) database by analyzing and summarizing the contents of the SARs from the inception of a program through the latest SARs submitted as part of the annual president's budget. This analysis will categorize cost growth by Service, type of system, and growth from milestones. The database contains a wide range of programmatic information for all Major Defense Acquisition Programs (MDAPs) in a digital format. This analysis will improve understanding of cost growth in order to enable better-informed decisions regarding both specific weapon system acquisitions and future resource and acquisition policy decisions.

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211, with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Robert Leonard, Mark Arena, and Obaid Younossi

Resources: Approximately one-half staff year

Schedule:

Start	*End*
Mar 2001	Continuing

Database: Yes

Publications: Historical Cost Growth of Completed Weapons Systems Programs, TR-343-AF, 2006

Is Weapon System Cost Growth Increasing?, MG-588-AF, 2007

Keywords: Government, Analysis, Weapon Systems, Data Collection, Database, Study

RAND–13

Title: Guidelines and Metrics for Assessing Space System Cost Estimates

Summary: The objective of this study is to expand and document the Air Force Cost Analysis Agency (AFCAA) resources and guidelines for performing sufficiency reviews of Analyses of Alternatives (AoAs), program office estimates (POEs), and any other items requiring a sufficiency review by creating a Space Systems Sufficiency Review Handbook. RAND will use available data to develop crosschecks, "rules of thumb," and other metrics useful for evaluating cost estimates. Eventually, each handbook section will include relevant past and current cost research studies, methodologies, average factors with ranges, "rules of thumb" (such as dollars per pound, dollars per drawing, hours per pound, hours per drawing, etc.), and recommended approaches to estimating each space WBS element. The emphasis will be on helping analysts identify cost drivers and potential issues early, by providing enough background to focus their analysis and data gathering in the areas most relevant to their review.

Classification: Unclassified

Sponsor: Richard Hartley (SAF/FMC), Deputy Assistant Secretary for Cost and Economics with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
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Performer: Bernard Fox

Resources: Approximately one staff year

Schedule:

Start	*End*
Jan 2003	Sep 2006 (Complete)

Database: None

Publications: Guidelines and Metrics for Assessing Space System Cost Estimates, TR-418-AF, 2007

Keywords: Government, Reviewing/Monitoring, Space Systems, Data Collection, Method

RAND–14

Title: Implications and Implementation of OSD's Evolutionary Acquisition Strategy Relying on Spiral Development

Summary: The objective of this research is to aid the Air Force Cost Analysis Agency (AFCAA) in formulating policies that anticipate and respond to the prospect of more widespread use of evolutionary acquisition strategies relying on a spiral development process, as recently mandated by OSD. This objective will be met through a threefold process. First, the project will survey, explicate, and clarify as much as possible the evolving OSD acquisition policy of focusing on evolutionary acquisition strategies relying on spiral development. Second, it will review and assess case studies of weapon systems development programs that exhibit one or more critical characteristics similar to OSD's new policy of evolutionary acquisition through spiral development. Finally, RAND will develop a qualitative assessment of the implications of OSD's new policy for the AFCAA, and generate implementation recommendations. The research will be conducted through literature reviews, extensive interviews with OSD and service acquisition policy makers and cost estimators, and assessment of historical case studies of programs with analogous attributes.

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211, with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
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Performer: Mark Lorell, Robert Leonard

Resources: Approximately two staff years

Schedule:

Start	*End*
Nov 2004	Nov 2005
Nov 2006	Nov 2007 (phase II)

Database: None

Publications: MG-413-AF, Evolutionary Acquisition: Implementation Challenges for Defense Space Programs, 2007 a second volume forthcoming

Keywords: Government, Analysis, Reviewing/Monitoring, Acquisition Strategy, Study

RAND–15

Title: Avionics and Mission Systems Cost Estimation Study

Summary: Over the last two decades, defense systems have become increasingly dependent on avionics, mission systems, and on-board electronic sensors. An increasingly larger portion of the defense budget is being spent to design, manufacture, upgrade, and maintain these systems. The objective of this research is to develop a taxonomy of current mission systems used on tactical military aircraft with an initial focus on the area of radar technology. The study will develop a database of technical, programmatic, and cost information from several recent radar programs to lead to a set of approaches and comprehensive processes to estimate the development and production cost of next generation systems.

Classification: Unclassified

Sponsor: OSD Cost Analysis Improvement Group (CAIG)/SAF/AQ

Mr. Fred Janicki, (703) 697-8228
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Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
E-mail: Jay.Jordan@pentagon.af.mil

Performer: Jim Dryden

Resources: Approximately 1.5 staff years

Schedule:

Start	*End*
Feb 2004	2007

Database: Yes

Publications: Proprietary document published, the non proprietary document in work

Keywords: Government, Reviewing/Monitoring, Electronics/Avionics, SD&D, Production, Database, Method

RAND–16

Title: Aircraft Cost Estimating Sufficiency Review Handbook

Summary: The handbook is a reference for AFCAA analysts who are conducting sufficiency reviews of estimates of aircraft development, procurement, and O&S costs. The handbook contains cost and schedule metrics for many Air Force and Navy fixed wing aircraft programs and addresses issues that analysts should keep in mind when applying the metrics. In FY04 metrics were added for unit recurring flyaway costs, schedule estimating relationships for development programs, and a methodology for the time-phasing of funds for development programs. In FY05, metrics for ongoing programs have been updated with the most recent available data, and the chapter on O&S costs has been updated to reflect recent research on the effect of aircraft aging, reliability, and other issues.

Classification: Unclassified

Sponsor: SAF/FMC, with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
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Performer: Michael Boito

Resources: Approximately one-half staff year

Schedule:

Start	*End*
Oct 2003	Sep 2004 (Phase I) (Complete)
Oct 2004	Oct 2005 (Phase II) (Complete)

Database: None

Publications: Aircraft Sufficiency Review Handbook, DRR-3640-AF, in review

Keywords: Government, Reviewing/Monitoring, Aircraft, Missiles, CER, Data Collection, Method

RAND–17

Title: Advanced Materials for Airframe: Price Trends, Industrial Base, and Affordability Initiatives

Summary: Advanced materials such as polymer composites and titanium are extensively used in military airframe structures. Understanding the factors behind price fluctuations in advanced materials is important for planning and forecasting the future costs of military aircraft. Our objective in this study is to assess underlying factors of price fluctuations and the implications of new manufacturing techniques in advanced materials to improve estimate of future costs of military airframe. We will analyze past trends, current changes, and future prospects of the price determinants and their relative importance. We will also provide a survey of new manufacturing techniques and their implication for production cost of future military airframe.

Classification: Unclassified

Sponsor: Blaise Durante (SAF/AQX) Deputy Assistant Secretary (Acquisition Integration), (703) 588-7211, with Mr. Jay Jordan, (AFCAA/TD) as Technical Monitor

Air Force Cost Analysis Agency, Research and Resource Management Division
Mr. Jay Jordan, (703) 604-0400; DSN 664-0451
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Performer: Somi Seong, Obaid Younossi, Benjamin Goldsmith

Resources: Approximately one-half staff year

Schedule:	*Start*	*End*
	Oct 2006	Sep 2007
Database:	None	
Publications:	Titanium: Industrial Base, Price Trends, and Technology Initiatives, DRR-4360-1-AF, draft in review	
Keywords:	Government, Reviewing/Monitoring, Aircraft, Missiles, CER, Data Collection, Method	

CNA Corporation (CNAC)

Name:	CNA Corporation, Cost and Acquisition Team	
Address:	4825 Mark Center Drive Alexandria, VA 22311-1850	
Director:	Dr. Jino Choi, (703) 824-2266	
Size:	Professional:	7
	Support:	4
	Consultants:	4
	Subcontractors:	0
Focus:	Cost, budget, affordability analysis of the Navy and DoD programs; analysis of DoD acquisition policy; investigation of defense industrial base	
Activity:	Number of projects in process:	10
	Average duration of a project:	12 months
	Average number of staff members assigned to a project:	3.5
	Average number of staff-years expended per project:	0.7
	Percentage of effort conducted by consultants:	5%
	Percentage of effort conducted by subcontractors:	0%

CNAC–1

Title: Design-Build Concurrency: Cost Implications

Summary: A February 2007 memorandum, Design/Build Concurrency, from the Assistant Secretary of the Navy, Research, Development and Acquisition, identified the high degree of design/build concurrency in the Littoral Combat Ship (LCS) as having introduced additional risk into the program. The memorandum also directed an analysis of current ACAT I programs to "understand the extent to which this situation exists across the Department's Navy and Marine Corps portfolio." CNA found that virtually all programs in the current ASN (RDA) ACAT I portfolio exhibited some degree of concurrency and 80 percent of current programs are more than 25-percent concurrent; 40 percent are more than 50-percent concurrent. In addition to answering the "extent to which this situation exists" question, we also examined a few select lead ship contracts in the current ACAT I portfolio and found some evidence that concurrency might not be associated with greater cost growth. This surprising finding was consistent with a 1994 RAND finding. DASN (Management and Budget) asked CNA to analyze that finding more extensively to better understand the relationship between concurrency and cost/schedule performance.

Classification: Unclassified

Sponsor: Deputy Assistant Secretary of the Navy (Management and Budget)

Performer: CNA Corporation, Cost and Acquisition Team
4825 Mark Center Drive
Alexandria, VA 22311-2053
Mr. Gary Christle, (703) 824-2693

Resources:

FY	*Dollars*	*Staff-years*
07	$215,000	1.4
08	$128,000	

Schedule:

Start	*End*
Jul 07	Sep 08

Publications: CNA Scientific Analyst Memorandum D0016949, "Design-Build Concurrency," April 2007

Keywords: Government, Estimating, Policy, Weapon Systems, SD&D, Production, Acquisition Strategy, Case Study, Method, Study

CNAC–2

Title: Reasons for Systemic Cost Underestimation

Summary: Cost growth in acquisition programs persist despite many studies and attempts to address the problem. This study will examine histories of the Navy's major defense acquisition programs and disaggregate factors contributing to cost growth. It will then analyze trends in those individual factors. One of the major factors is underestimation of program costs to begin with. A part of the problem lies in the pressure for a program "buy-in." This study will draw on the literature that identifies the conditions that contribute to underestimating cost and how they apply to program managers and acquisition community in general. It will then explore the budget impact if the Navy were to adopt more realistic cost estimates throughout its ACAT I programs.

Classification: Unclassified

Sponsor: Deputy Assistant Secretary of the Navy (Management and Budget)

Performer: CNA Corporation, Cost and Acquisition Team
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Dr. Julianne Nelson, (703) 824-2285

Resources:

FY	*Dollars*	*Staff-years*
08	$80,000	
09	$120,000	0.7

Schedule:

Start	*End*
Apr 08	Feb 09

Publications: TBD

Keywords: Government, Analysis, Budgeting, SD&D, Production, Acquisition Strategy, Risk/Uncertainty, Economic Analysis, Study

CNAC–3

Title: O&S Cost Growth from AOA Estimates

Summary: Analyses of Alternatives (AOAs) are conducted to support acquisition decisions of future programs. As a part of AOA, life-cycle costs of different alternatives are estimated and compared. Life-cycle costs include both acquisition and operating and support (O&S) costs. Recent experiences show that the actual program O&S costs are radically exceeding estimates being performed during the AOAs. The Navy's Assessment Division (N81), under the Deputy Chief of Naval Operations for Resources, Requirements and Assessments, asked CNA to examine the growth in O&S costs from the AOA estimates.

To mitigate future growth in the O&S costs, the Navy needs to understand the underlying causes of cost growth. This understanding will help the Navy develop better estimates, which will help support better decision-making in the acquisition process. In addition, this will help highlight potential problems in existing programs of record that are in the acquisition phase but have not been fielded or have few operating data.

Classification: Unclassified

Sponsor: Director, Navy Assessment Division (OPNAV N81)

Performer: CNA Corporation, Cost and Acquisition Team
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Dr. Jino Choi, (703) 824-2266

Resources:

FY	*Dollars*	*Staff-years*
08	$200,000	
09	$100,000	1.0

Schedule:

Start	*End*
Mar 08	Jan 09

Publications: TBD

Keywords: Government, Estimating, Weapon Systems, Spares/Logistics, Manpower/Personnel, Operations and Support, Readiness, Reliability, Sustainability, Case Study, Review, Method, CER, Study

CNAC–4

Title: Quantifying Uncertainty of Predictions from Nonlinear Cost Estimation Relationships

Summary: This study compares two methods for quantifying uncertainty of cost predictions from inherently non-linear cost estimating relationships (CERs). A limitation of CERs is that they yield prediction point estimates that are certain to be wrong. Estimation of CER prediction uncertainty, then, is an important issue. There are two sources of cost prediction uncertainty that compound each other. First, CER parameters are subject to sampling error because the parameters are estimated from a sample of data. A second source of uncertainty stems from the fact that CERs cannot account for every factor that affects the cost of a system. There exists an exact formula to calculate the cost prediction uncertainty for a linear (in parameters) CER. But no such formula exists to calculate the prediction interval for an inherently non-linear CER. An inherently non-linear CER is one that cannot be linearized by applying a monotonic or order preserving transformation such as the logarithmic transformation. Some recent discussions in the cost analysis and estimating community have focused on how to quantify prediction uncertainty for inherently non-linear CERs. One group of cost analysts advocates the non-paramatric bootstrap, a computationally intensive statistical re-sampling algorithm that is similar to the well-known Monte Carlo method. A second group of cost analysts advocates using the approximate delta method of statistics. It approximates the non-linear CER prediction with a linear expression in the CER parameters, and then applies the formula for the variance of a linear combination of random variables. This study will identify strengths and weaknesses of each method and aims to recommend one to DOD cost community.

Classification: Unclassified

Sponsor: CNA-initiated project, approved by Navy Assessment Division (OPNAV N81)

Performer: CNA Corporation, Cost and Acquisition Team
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Alexandria, VA 22311-2053
Dr. Richard Sperling, (703) 824-2533

Resources:

FY	*Dollars*	*Staff-years*
07	$25,000	
08	$15,000	0.2

Schedule:

Start	*End*
Jan 07	Aug 08

Publications: TBD

Keywords: Government, Estimating, Analysis, Mathematical Model, CER, Study

CNAC–5

Title: Cost and Industrial Base Implications of Capital Investments

Summary: In 2001, Bath Iron Works (General Dynamics) completed a four-year modernization plan to its shipyard. This project built the "Land Level Transfer Facility" and a floating dry dock. The investment in modernization allowed for a reported 6 percent increase in productivity for Bath's DDG-51 production line, despite the program already being mature and had already achieved all possible savings due to the learning curve. The self-investment by Bath Iron Works led to productivity gains for the shipyard and lower prices for the Navy. DASN (M&B) is interested in how investments at other shipyards will impact the prices the Navy pays for its ships. Due to Hurricane Katrina, Ingalls (Northrop Grumman Ship Systems) had to invest in its own shipyard to rebuild its capital stock. The exogenous shock to the shipyard will allow CNA to study how these new investments will affect productivity at Ingalls. To that end, the Navy wants to know what the expectation should be for productivity gains at Ingalls, given the experience at Bath Iron Works.

Classification: Unclassified

Sponsor: Deputy Assistant Secretary of the Navy (Management and Budget)

Performer: CNA Corporation, Cost and Acquisition Team
4825 Mark Center Drive
Alexandria, VA 22311-2053
Dr. Michael Gessner, (703) 824-2700

Resources:

FY	*Dollars*	*Staff-years*
08	$178,000	
09	$158,000	1.2

Schedule:

Start	*End*
Oct 07	May 09

Publications: TBD

Keywords: Government, Industry, Analysis, Policy, SD&D, Production, Material, Manufacturing, Acquisition Strategy, Risk/Uncertainty, Survey, Case Study, Economic Analysis, Review, Study

CNAC–6

Title: Early Warning Model for Acquisition Program Cost and Schedule Growth

Summary: In a previous study, CNA demonstrated the validity of the Rayleigh distribution to model cost accrual over the life of a research and development contract. The Deputy Assistant Secretary of the Navy (Management and Budget) asked CNA to examine expansion of the model to a broader range of applications and improve the user interface. As currently configured, the prototype model has been validated for use on only development contracts. In addition, the model does not account for approximately 30 percent of ultimate cost growth—a problem shared across all current EAC prediction techniques. Issues the study will address include whether the model can (1) be used for production contracts, (2) account for the missing 30 percent of cost growth, (3) be used for total program- and appropriation-level assessments, and (4) be used during source selection. We will also address whether automated business insight can be improved and whether the user interface can be designed to be more intuitive for managers with a good understanding of program management but limited understanding of EVM.

Classification: Unclassified

Sponsor: Deputy Assistant Secretary of the Navy (Management and Budget)

Performer: CNA Corporation, Cost and Acquisition Team
4825 Mark Center Drive
Alexandria, VA 22311-2053
Mr. Gary Christle, (703) 824-2693

Resources:

FY	*Dollars*	*Staff-years*
08	$250,000	0.8

Schedule:

Start	*End*
Oct 07	Sep 08

Publications: CNA document D0015902, "A Stitch in Time Saves Nine: Program Diagnostics Using the Rayleigh Model for Executive Decision-Makers," Feb 2007

Keywords: Government, Analysis, Reviewing/Monitoring, SD&D, Acquisition Strategy, Risk/Uncertainty, Schedule, Data Collection, Mathematical Modeling, Model

CNAC–7

Title: Information Markets for Acquisition

Summary: The idea for this project germinated in a method called information markets that was cursorily examined in an earlier CNA study as a way of assessing acquisition volatility. We developed a market trading in "assets" whose contingent future value depends on the outcome of an acquisition cost or schedule variable. All "endowments," "assets," and "prices" are denominated and exchanged in "virtual dollars." Each trader begins with an equal "endowment" of these "virtual dollars" to participate in the market. Traders conduct trades based on their beliefs about future contingent acquisition events. Their motivation is to amass "virtual wealth," which is a measure of enhanced reputation. The "prices" extant in such a market reflect its aggregate belief about the probabilities of the future acquisition events. These "prices" can be used to track the forecasted expected outcomes of these acquisition variables. Current forecasting techniques in acquisition management are often inaccurate. The result is surprise on the part of decision-makers when cost turns out to be much higher than expected and the contract schedule turns out to be much longer than expected. The primary issues in our research are whether: (1) information markets can be implemented to capture the wisdom of the markets to do a better job of forecasting acquisition variables of interest, and (2) we, by using information markets, can infer probability distributions for predicted acquisition variables, assess the volatility of those predictions, and calculate the risk associated with the acquisition variable of interest. We set up an acquisition information market in December 2007, with traders drawn from volunteers within CNA. We designed 10 "assets" whose market values depend on the aggregate market assessment of the expected outcomes of cost or schedule related to acquisition contracts of interest to DoD. We will track the market trends in "prices" through May 2008 and evaluate the market's performance against realized cost and schedule outcomes and against "what the experts were saying." We will document these results and assess the feasibility, desirability, and practicality of implementing a similar market within DoD entities to provide additional and potentially richer data analysis and forecasts to the acquisition decision-maker.

Classification: Unclassified

Sponsor: CNA-initiated project, approved by Navy Assessment Division (OPNAV N81)

Performer: CNA Corporation, Cost and Acquisition Team
4825 Mark Center Drive
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Dr. Dan Davis, (703) 824-2533

Resources:

FY	*Dollars*	*Staff-years*
08	$150,000	0.5

Schedule:

Start	*End*

Oct 08 Jun 09

Publications: CNA document D0016573.A2, Management of the Navy's Acquisition Portfolio: New Approaches, by Gary Christle, Dan Davis, and Keith Brown, Unclassified, Sep 2007

Keywords: Government, Estimating, Analysis, Budgeting, SD&D, Production, Acquisition Strategy, Survey, Data Collection, Time Series, Mathematical model, Study

CNAC–8

Title: eCASS Life-Cycle Cost

Summary: The Consolidated Automated Support System (CASS) is the Navy's standard Automated Test Equipment for support of electronic and avionics systems. It was developed to reduce the proliferation of peculiar support equipment used at shore and afloat Intermediate Maintenance Activities and Navy depots. The NAVAIR CASS program office (PMA-260) is initiating a CASS modernization program (called eCASS) to update the earlier stations. CNA had developed independent government "should cost" estimates for the eCASS station procurement. The new task from PMA-260 is for CNA to develop the life-cycle cost estimates, including risk analysis.

Classification: Unclassified

Sponsor: CASS Program Office (PMA-260), Naval Air Systems Command

Performer: CNA Corporation, Cost and Acquisition Team
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Alexandria, VA 22311-2053
Dr. Richard Sperling, (703) 824-2278

Resources:

FY	*Dollars*	*Staff-years*
08	$200,000	0.8

Schedule:

Start	*End*
Nov 07	Sep 08

Publications: CNA document D0015902, "eCASS Procurement: Methodology and Estimates," Aug 2007

Keywords: Government, Estimating, Electronics/Avionics, Manufacturing, Automation, Advanced Technology, Data Collection, Statistics/Regression, Study

CNAC–9

Title: Rebaselining Navy's Budget

Summary: The Navy's support of the President's Global War on Terrorism (GWOT) has been financed largely through supplemental budgets that we justify as the additional cost of operations in Iraq and Afghanistan. However, GWOT is more than just those operations. It will continue beyond today's conflicts and, perhaps as importantly, long after supplemental budgets go away. Resetting the force has been discussed in terms of identifying the requirements needed to regain full readiness and capabilities it had before the conflicts in Iraq and Afghanistan. The Navy is already examining those requirements. However, the day-to-day operations without engagements may be very different for this reset force. The Navy needs to understand the budget implications of meeting tomorrow's baseline requirements. We are examining the supplemental budgets to analyze what portions are specific to the operations in Iraq and Afghanistan. We are also analyzing the changes in utilizations of the Navy's platforms (in terms of flying hours and steaming days) and how they affect the cost and budget.

Classification: Unclassified

Sponsor: Director, Navy Programming Division (OPNAV N80)

Performer: CNA Corporation, Cost and Acquisition Team
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Dr. Donald Birchler, (703) 824-2998

Resources:

FY	*Dollars*	*Staff-years*
08	$200,000	0.7

Schedule:

Start	*End*
Oct 07	Aug 08

Publications: TBD

Keywords: Government, Programming, Budgeting, Acquisition Strategy, Review, Statistics/Regression, Study

CNAC–10

Title: Annual Operating Plan

Summary: This project for the office of the Assistant Secretary of the Navy (Research, Development and Acquisition) is a follow-on to the CNA's March 2006 study "Strategic Management System for Navy Acquisition." That study recommended implementation of a new ASN (RDA) oversight model based on an annual operating plan (AOP) that is structured to support achievement of the long-term Acquisition Program Baseline (APB). This study will provide insight into how the ASN (RDA) can most effectively direct the Navy's acquisition program to achieve improved outcomes and efficient allocation of resources. Issues include: how an AOP can be implemented as a mechanism for planning and tracking program performance; how workload on Program Managers, Program Executive Officers, and ASN (RDA) staff can be minimized; how the AOP approach will relate to the oversight requirements of the USD (AT&L); and whether an AOP can include consideration of volatility as well as tracking via Dashboard. We will review and evaluate current metrics, processes, practices, and initiatives and adapt them to a dynamic model for communicating the RDA agenda and ensuring its timely execution.

Classification: Unclassified

Sponsor: Deputy Assistant Secretary of the Navy (Management and Budget)

Performer: CNA Corporation, Cost and Acquisition Team
4825 Mark Center Drive
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Mr. Gary Christle, (703) 824-2693

Resources:

FY	*Dollars*	*Staff-years*
06	$125,000	
07	$20,000	
08	$80,000	0.5

Schedule:

Start	*End*
Jul 06	Sep 08

Publications: CNA document D0016573, "Management of the Navy's Acquisition Portfolio: New Approaches," Sep 2007

Keywords: Government, Policy, Acquisition Strategy, Case Study, Method, Study

Institute for Defense Analyses (IDA)

Name:	Cost Analysis and Research Division		
Address:	4850 Mark Center Drive, Alexandria, VA 22311-1882		
Director:	Dr. David L. McNicol		
Size:	Professional:	105	
	Support:	5	
	Consultants:	50	
	Subcontractors:	5	
Focus:	Costs of weapon systems, forces, and operations		
Activity:	Number of projects in process:		50
	Average duration of a project:		1 year
	Average number of staff members assigned to a project:		4
	Average number of staff-years expended per project:		2
	Percentage of effort conducted by consultants:		7%
	Percentage of effort conducted by subcontractors:		10%

IDA–1

Title: Reliability Methodology for Cost and Effectiveness Analysis

Summary: Reliability analysis is a key component of many IDA products and is used by multiple IDA divisions. In the Cost Analysis and Research Division, reliability analysis is used to determine the effect of component improvements on overall system reliability and effectiveness, and how that impacts Operations & Support cost. Our ability to use component reliability figures to estimate parts and labor costs is an important competency that allows for more accurate estimates of such costs as depot level reparable and consumables. Another important influence of reliability on O&S costs is in the area of maintenance manpower. The objective of this research task is to document and disseminate our current methods for applying reliability analysis to cost analysis and to mission effectiveness analysis.

Classification: Unclassified

Sponsor: IDA
4850 Mark Center Drive
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Performer: IDA
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Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2008	$20,000	

Schedule:

Start	*End*
Jan 2008	Dec 2008

Database: N/A

Publications: Annotated briefing to be developed

Keywords: Government, Estimating, Operations and Support, Mathematical Modeling, Reliability Analysis

IDA–2

Title: Cost-Effective Aerial Targets

Summary: This task will evaluate the cost of developing and producing full-scale aerial targets as defined by government-created design concepts. The cost estimates will use information provided by commercial vendors to estimate the savings that their participation might achieve.

Classification: Unclassified

Sponsor: DOT&E

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2008	$300,000	

Schedule:

Start	*End*
Nov 2007	Jun 2008

Database: None

Publications: None

Keywords: Government, Estimating, Aircraft, C&TD, SD&D, Production, Labor, Material, Overhead/Indirect, Economic Analysis, Study

IDA–3

Title: Cost-Effectiveness Analysis of Training

Summary: The Under Secretary of Defense (Personnel and Readiness) is overseeing an assessment of the Training Transformation (T2) program. IDA is providing support for this study effort. This includes consideration of how well T2 is supporting the joint training needs of the Combatant Commanders. The adequacy of funding to accomplish T2's mission will also be addressed.

Classification: Unclassified

Sponsor: Deputy Under Secretary of Defense (Readiness)
The Pentagon, Room 1C757
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2004	$519,000	2.0
2005	$600,000	2.4
2006	$750,000	3.0
2007	$1,058,000	4.0
2008	$725,000	3.0

Schedule:

Start	*End*
Jan 2004	Jul 2009

Database: To be determined

Publications: "2005 Training Transformation Assessment," Office of the Under Secretary of Defense for Personnel and Readiness

"2007 Training Transformation Block Assessment," Office of the Under Secretary of Defense for Personnel and Readiness

Keywords: Government, Reviewing/Monitoring, Policy, Manpower/Personnel, Operations and Support, Training, Readiness, Economic Analysis, Study

IDA–4

Title: Business Plan for Training Modeling and Simulation

Summary: This task will produce an investment strategy for developing modeling & simulation (M&S) tools that will help fill key gaps in the training capability of the Department of Defense. It will:

- Identify current and planned training M&S capabilities
- Identify gaps in the current and planned training M&S capabilities
- Define activities to close the identified gaps
- Provide a Draft Training M&S Business Plan

Classification: Unclassified

Sponsor: Under Secretary (Personnel and Readiness)

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2006	$250,000	1.0

Schedule:

Start	*End*
Aug 2006	Jul 2008

Database: None

Publications: To be determined

Keywords: Training, Modeling, Mathematical Modeling, Method

IDA–5

Title: Mechanisms to Establish and Track Weapon System Sustainment Baselines

Summary: The objective of this project is for IDA to develop and validate formal mechanisms for the defense acquisition process that would (1) support review and analysis of baseline targets for system reliability, maintainability, cost of ownership, and availability as proposed by the military services, and (2) track ongoing projections of actual performance relative to these baseline targets throughout the system life cycle. In addition, the sponsor wants IDA to improve its existing simulation and modeling tools so that they can be used to quantify the interactions and tradeoffs among these parameters. Over the course of the research project, IDA is conducting a case study (using the C-17 airlift aircraft) to help develop and validate this framework. We have obtained historical C-17 acquisition documents (such as requirements documents, program baselines, and test and evaluation master plans) for four points in time:

- Milestone II (1985)
- Low-Rate Initial Production (1989)
- RM&A Evaluation/Milestone IIIB (1995)
- Current day

The historical information will be used to establish or validate program baseline targets for the various sustainment parameters for each period of history, using only information that would have been available at that point in time. In addition, IDA will modify its IMEASURE simulation model for airlift missions, to quantify the interactions among C-17 parameters for reliability and maintainability, supply responsiveness, operating and support costs, operational availability, and capability (as measured by effective fleet size). Additional funds may be added at a later date to conduct other case studies.

Classification: Unclassified

Sponsor: OSD AT&L(L&MR)

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$200,000	0.9
2008	$250,000	1.0

Schedule:

Start	*End*
Jul 2007	Aug 2008

Database: None

Publications: Final report (August 2008)

Keywords: Government, Analysis, Weapon Systems, Operations and Support, Readiness, Reliability, Sustainability, Case Study, Method, Computer Model, Study

IDA–6

Title: Assessment of Trade-offs between the Cost of Operational Unsuitability and RDT&E Cost

Summary: From 1984 through 2005, about one third of major systems tested in Operational Test and Evaluation were judged not operationally suitable. Poor reliability and maintainability have been the common factors for unsuitability. The objective of this project is to answer two questions: (1) when a system is found to be operationally unsuitable at OT&E, what are the associated costs? (2) To what extent can such costs be avoided by additional investment during SDD? The study first concentrates on a few selected DoD acquisition programs. IDA completed three case studies: F-22, MV-22 and C-17. The results were presented to the sponsor, and the draft report is under review.

Classification: Unclassified

Sponsor: OSD/DOT&E
The Pentagon, Room 3D1067
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2006	$30,000	
2007	$470,000	

Schedule:

Start	*End*
Oct 2006	Ongoing

Database: None

Publications: To be determined

Keywords: Government, Test and Evaluation, Reliability, Case Study, Review

IDA–7

Title: Contingency Operations Support Tool (COST)

Summary: The objective of this task is to continue to refine the process of estimating the incremental cost of proposed and on-going military operations, and to further develop the automated tool for conducting such estimates. The USD(C) has mandated the use of COST as the common cost estimating platform for the reimbursement of all war-related costs. COST is a systemic part of the supplemental appropriation process. More than $329B of supplemental funding requests from FY02 through FY09 were generated by the COST model. Additionally, this task supports the design and development of the GWOT Request Information Database (GRID) which is used by USD(C), the Services, and Defense Agencies to manage and assess all supplemental requests. IDA hosts the COST and GRID applications 24/7 worldwide via its own secure SIPRNet facility.

Classification: Unclassified

Sponsor: Office of the Under Secretary of Defense (Comptroller), Program/Budget

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2004	$1,400,000	8.0
2005	$1,400,000	7.5
2006	$1,400,000	7.1
2007	$1,700,000	7.5
2008	$1,500,000	7.0

Schedule:

Start	*End*
	Ongoing

Database: SQL Server 2005/Visual Studio 2008

Publications: COST Users Guide
GRID User's Guide

Keywords: Government, Estimating, Analysis, Budgeting, Computer Model

IDA–8

Title: Total Ownership Cost Reduction

Summary: OSD(AT&L)/Defense Systems/Systems Engineering Office is actively seeking new and innovative ways to reduce the cost of weapon systems. The strategy involves reducing the total ownership costs (R-TOC) of weapon systems by reducing their Operations and Support (O&S) costs in the sustainment phase of programs. IDA develops strategies and action plans to identify high cost drivers, reviews current DoD activities addressing components O&S cost, and develops plans to reduce the cost impact of those drivers. IDA acts as the DoD interface agent for the fifteen R-TOC Special Interest Programs (SIPs) now in place as they develop and implement their individual cost reduction initiatives. IDA plans and conducts quarterly R-TOC Forums to facilitate the exchange of ideas and best practices between programs and across Services. The USD (AT&L) has challenged all programs to reduce their inflation growth of O&S costs by 30 percent between FY04 and FY10. Thus, all programs must/should set an R-TOC goal for FY10 and define a set of actions to reach that goal. A set of fifteen Special Interest Programs was named to show-the-way for this new R-TOC focus and to institutionalize R-TOC across programs. IDA continues to work with these programs on strategies, action plans and initiatives to reach their FY10 goals. An R-TOC Program Element was developed with IDA assistance and it currently funds projects at a rate of $25M per year. The DoD Value Engineering (VE) initiative is another element of this overall R-TOC effort. IDA

developed a strategy to re-invigorate this legislatively required initiative in all programs and is currently working that strategy. R-TOC and VE initiatives are complimentary and are being integrated through strategies, requirements, assessments, planning recommendations and implementation guidance.

Classification: Unclassified

Sponsor: OUSD(AT&L)/Defense Systems/Systems Engineering
The Pentagon, Room 3D1075
Washington, DC

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2006	$450,000	2
2007	$450,000	2
2008	$450,000	2

Schedule:

Start	*End*
Oct 2003	Continuing

Database: None

Publications: Multiple IDA Internal documents – 4 Forums per year plus responses to Forum questions

"Reduction of Total Ownership Costs (R-TOC) Best Practices," Danny L. Reed

"Guidebook for Using Value Engineering Change Proposals in Supplies and Services Contracts," IDA Document, D-3046, Danny L. Reed and Jay Mandelbaum

"Value Engineering Handbook," IDA Document, P-4114, Danny L. Reed and Jay Mandelbaum

Developed a VE Continuous Learning Module – on the DAU website

Developed a VECP Community of Practice – on the DAU website

R-TOC and VE websites – hosted by IDA

Numerous open presentations on R-TOC and VE

Keywords: Government, Analysis, Weapon Systems, Operations and Support, Life Cycle, Sustainability, Case Study, Method, Study

IDA–9

Title: Portfolio Optimization Feasibility Study

Summary: This study began as an investigation of the feasibility of applying optimization technology for defense acquisition planning purposes. Initially we focused on exploring the feasibility of using optimization technology to develop a Master Production Schedule for 80 ACAT1 systems. An initial prototype model was developed for optimizing a Master Production Schedule of 8 systems for 10 years. Beginning August 1999, the study progressed to development of a costing and optimization model for the Master Production Schedule of 80 ACAT1 systems for an 18-year planning horizon, which has since been expanded to approximately 100 systems, of which more than half are econometrically optimizable. This model was developed in September 2000 and has been deployed to OUSD(AT&L). Since then, RDT&E costs have also been added to the model for ACAT1 systems. The model continues to be modified for performance improvements, updating of underlying data and econometrics, and adding of new ACAT1 systems.

Classification: Unclassified

Sponsor: OUSD(AT&L) / ARA

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
1998	$90,000	0.5
1999	$450,000	2.4
2000	$1,200,000	5.6
2001	$450,000	2.4
2002	$200,000	1.1
2003	$200,000	1.1
2004	$200,000	1.1
2005	$150,000	0.8
2006	$91,000	0.5
2007	$223,000	0.5
2008 to date	$135,000	0.7

Schedule:

Start	*End*
Jun 1998	Ongoing

Database: *Title:* Acquisition Portfolio Scheduling Costing/Optimization Model Database

Description: Production profiles and costs for over 100 ACAT1 and pre-MDAP systems and over 40 production facilities

Automation: MS Access, CPLEX, Visual Basic 6, C++, C-sharp, TKSolver

Publications: "Econometric Modeling of Acquisition Category I Systems at the Boeing Plant in St. Louis, Missouri—Revised," IDA Paper P-3548, Revised, June 2001

"Econometric Modeling of Acquisition Category I Systems at the Lockheed-Martin Plant in Marietta, Georgia," IDA Paper P-3590, July 2001

"Econometric Modeling of Acquisition Category I Systems at the Raytheon Plant in Tucson, Arizona," IDA Paper P-3648, June 2002

"The Acquisition Portfolio Schedule Costing/Optimization Model: A Tool for Analyzing the RDT&E and Production Schedules of DoD ACAT I Systems," IDA Document D-2835, October 2003

Keywords: Government, Weapon Systems, Production, Life Cycle, Acquisition Strategy, Mathematical Modeling, Economic Analysis, Study

IDA–10

Title: Analysis of Portfolio Risk Associated with Budgeting Space Programs

Summary: The objective of this task is to investigate approaches for analyzing the cost and schedule interdependencies among programs in a portfolio. Government agencies that estimate the cost of space programs rely on somewhat different methodologies to budget for their respective programs. Because individual space programs tend to exist as part of larger portfolios of interrelated capabilities, it would be of interest to understand the relationship among the various programs within a given area. How do funding shortfalls or schedule disruptions in one program affect the ability to achieve the capabilities required for the portfolio as a whole to succeed? What are some approaches to addressing the outcome of funding shortfalls or schedule disruptions for a portfolio of possibly interdependent programs? The answers to these questions could point to useful methods to balance the needs of individual programs against the needs of the program portfolio as a whole and to highlight the role of dependencies among component programs across a portfolio.

Classification: Unclassified

Sponsor: OSD(PA&E)
OAPPD
The Pentagon, Room BE829
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2008	$170,000	

Schedule:

Start	*End*
Oct 2005	Indefinite

Publications: Briefings, and models.

Database: None

Keywords: Government, Estimating, Space Systems, Life Cycle, Risk/Uncertainty, Case Study, Mathematical Modeling, Study

IDA–11

Title: Profit Policy Research

Summary: The Defense Department, through the services, buys equipment and services for which no open market exists. In negotiating the contracts for these acquisitions, the government has policy guidelines to aid the contracting officer develop a reasonable amount of profit to pay the contractor. The goal of profit policy is a contract price that reimburses the contractor for its costs, provides the necessary incentives to yield beneficial performance, and to provide the contractor with sufficient risk reward. The effect of profit policy on contractor profits is inextricably linked to the type of contract financing policy the government uses in an acquisition. We look at the effectiveness of the two policy tools, profit and contract financing, on achieving contract outcomes and contractor financial performance. We will also look at how the policies are implemented by the Department. Our methodologies will include analyses of profit target setting and actual contract results data in addition to using discounted cash flow modeling to value a contract or contract stream to an investor.

Classification: Unclassified

Sponsor: DUSD (Industrial Policy)
3300 Defense Pentagon, Room 3C638
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$660,000	

Schedule:

Start	*End*
Oct 2006	Oct 2007

Publications: Reports, briefings, and models.

Database: N/A

Keywords: Government, Industry, Policy, Risk/Uncertainty, Study

IDA–12

Title: KC-X Pricing Support

Summary: The Institute for Defense Analyses is supplying data and analysis concerning commercial aircraft and commercial engine pricing. This information will be used in evaluating costs for the aircraft proposed for the KC-X program, both of which are based on commercial aircraft. The work under this task included collecting data from commercial consulting firms and from previous analyses involving commercial pricing, and developing relationships to allow application of the data to the KC-X case.

Classification: Unclassified

Sponsor: OSD/PA&E(RA)

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2008	$75,000	

Schedule:

Start	*End*
Nov 2007	Sep 2008

Database: None.

Publications: The work is being documented in briefings and informal deliverables.

Keywords: Government, Aircraft, Weapon Systems, Study

IDA–13

Title: Analyzing the Affordability of ONR's Multifunction RF Technologies and Applications

Summary: IDA is carrying out a cost realism, technical realism and affordability analysis of several advanced technology projects being funded by ONR in the context of their Integrated Topside Program. The projects are based on the application of multifunction RF technology to radar, EW, communications and related areas. The focus will be upon the use of the multifunction technologies as applied in specific environments such as DD(X) and CG(X). IDA will also provide an independent look at S-Band Array and other on-going ONR projects.

Classification: Unclassified

Sponsor: OSD CAIG/Office of Naval Research

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2005	$400,000	
2008	$450,000	

Schedule:

Start	*End*
Sep 2005	Sep 2009

Database: None

Publications: N/A

Keywords: Government, Analysis, Electronics/Avionics, Study

IDA–14

Title: Force and Infrastructure Studies

Summary: This work program supports senior decision-maker's use of the Department's Future Years Defense Program (FYDP) data. The sponsor is the Force and Infrastructure Cost Analysis Division (FICAD) in OSD (PA&E). Examples of its products include:

- The DoD Force and Infrastructure Categories (F&ICs) were established in 2002 to provide a FYDP-based framework for high-level internal analyses and Congressional reporting. The F&IC taxonomy organizes the FYDP's program elements and their resources into capability and support-related categories. These categories require periodic review and updating. In 2008 this project will update and adjust the F&ICs to reflect the 2006 QDR and to prepare for future FYDP-based analyses.
- The FYDP must be normalized to ensure that funding and manpower values found in program elements from Fiscal Year 1975 and forward use the same definitions as the current budget year. An accurate representation of FYPD historical information requires a consistent set of financial policies to be represented within the data. This objective requires ongoing analyses on the impact of financial decisions and policies made during the current budget year. An adjusted FYDP database is produced annually.
- Additionally, FICAD is periodically asked to conduct special, short-deadline studies for senior leadership on a wide variety of subjects requiring analysis of the FYDP.

Other research will be conducted using the FYDP database as required.

Classification: Unclassified work dealing with a classified database

Sponsor: OSD(PA&E)
FICAD
The Pentagon, Room BE798
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
1992	$ 40,000	0.3
1993	$220,000	2.4
1995	$130,000	1.0
1996	$150,000	1.2
1999	$250,000	1.5
2000	$322,000	1.7
2002	$80,000	0.3
2003	$200,000	0.8
2004	$150,000	0.6
2005	$150,000	0.6
2006	$100,000	0.4
2007	$100,000	0.4
2008	$100,000	0.4

Schedule:

Start	*End*
	Ongoing

Database: The set of rules by which the FY 2009 President's Budget FYDP is to be normalized.

Publications: None

Keywords: Government, Programming, Forces, Infrastructure, Operations and Support, Study

IDA–15

Title: Detailed Earned Value Analysis

Summary: The Department of Defense requires the collection of Earned Value (EV) Management information for high dollar value cost or incentive contracts. OSD routinely uses high-level EV data to monitor program progress and often misses early signs of potential cost and schedule problems. The objective of this project is to develop techniques, algorithms, and tools to support automated analysis of detailed EV data to provide early detection and identification of program issues. IDA developed several algorithms to provide early warning of cost growth and schedule delay. IDA is developing automated tools.

Classification: Unclassified

Sponsor: OSD(PA&E)
OAPPD
The Pentagon, Room BE827
Washington, DC 20301
OUSD/AT&L/ARA
The Pentagon, Room 3D161
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$480,000	

Schedule:

Start	*End*
Jan 2007	Ongoing

Database: None

Publications: To be determined

Keywords: Government, Reviewing/Monitoring, Weapon Systems, CPR/CCDR, Risk/Uncertainty, Mathematical Modeling, Method

IDA–16

Title: Program Level Earned Value Analysis

Summary: In a previous study, the Institute for Defense Analyses constructed a tool to expand the used of earned value data in tracking the cost progress of major defense programs. The tool allows comparison of cost progress to Acquisition Program Baseline values and other management targets. The work in the current effort uses this tool to perform ongoing evaluations of Major Defense Acquisition Programs as these programs provide updated data to the Defense Acquisition Management Information Retrieval (DAMIR) database. The work also does more detailed analysis of selected programs, to include their history as well as their current cost status. In addition, the project is evaluating effectiveness of the standard Cost Progress Index (CPI) and Schedule Performance Index (SPI) metrics employed in most earned value analyses, and is exploring alternatives to both metrics.

Classification: Unclassified

Sponsor: USD(AT&L)/ARA

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$200,000	
2008	$200,000	

Schedule:

Start	*End*
Oct 2006	Jun 2009

Database: Uses the USD(AT&L) Defense Acquisition Management Information Retrieval (DAMIR) database.

Publications: The work is being documented in briefings, and will deliver a final report. Spreadsheets and analysis results for individual programs were provided to the sponsor as required.

Keywords: Government, Reviewing/Monitoring, Weapon Systems, Mathematical Modeling, Review, CPR/CCDR

IDA–17

Title: Industrial Base Research

Summary: The Institute for Defense Analyses has created a web-based research site that allows access to a set of commercial databases from a single site. The site includes a search tool tailored to the needs of analysts requiring information concerning industrial capability, mergers and acquisitions and general research concerning firms in the defense industrial base.

Classification: Unclassified

Sponsor: USD(AT&L)/IP

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$100,000	
2008	$100,000	

Schedule:

Start	*End*
Oct 02	Ongoing

Database: Uses databases created and sold by commercial firms.

Publications: The work creates and maintains a website.

Keywords: Government, Industrial Base, Weapon Systems

IDA–18

Title: Industry Restructure and Rationalization

Summary: The task objectives are to evaluate the consolidation and rationalization (i.e., elimination) of defense firms' production capacity, and identify factors that encourage or discourage such rationalization. After the cold war ended DoD established policy to help the defense industry consolidate with the hope that the remaining companies would rationalize underutilized infrastructure and pass savings on to the government. IDA has assessed the consolidation that occurred in the aircraft and missile sectors in the past and found mixed results. In this study, we look at the consolidation of the major ship industrial base of which five independent companies, representing the six major yards, consolidated into two companies: General Dynamics and Northrop Grumman. From several sets of data we find that the industry did not rationalize, although there were exceptions. Furthermore we found that the marine divisions of two companies are profitable and have little incentive to rationalize.

Classification: Unclassified

Sponsor: DUSD (Industrial Policy)
3300 Defense Pentagon, Room 3C638
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$500,000	

Schedule:

Start	*End*
Oct 2006	Oct 2008

Publications: Reports, briefings, and models

Database: N/A

Keywords: Government, Industry, Overhead/Indirect, Production Rate, Economic Analysis, Study

IDA–19

Title: Revision of CAIG Policy, Procedure, and Processes

Summary: The objective of this project is for IDA to assist the Cost Analysis Improvement Group (CAIG) in revising its issuances (directives and manuals) and publications (guides and pamphlets), many of which were quite old and needed to be updated to conform to the latest DoD acquisition regulations. Since 2004, IDA has assisted with updates to the revised CAIG directive (DoD Directive 5000.04), the CAIG Operating and Support (O&S) Cost-Estimating Guide, and the Cost and Software Data Reporting (CSDR) Manual (DoD Manual 5000.04-M-1). In addition, IDA provided the CAIG with two chapters of the AT&L Defense Acquisition Guidebook that concern cost estimation, affordability, and related topics. In 2007, IDA supported the CAIG and the military service cost centers in conducting a study of the DoD cost estimation process for major defense acquisition programs at major milestone reviews. The study was requested by USD(AT&L) in response to a Defense Science Board review concerning streamlining the oversight of acquisition programs. The objective of the CAIG-led study was to improve DoD's ability to estimate costs both objectively and realistically, while examining ways to reduce complexity and cost-estimating cycle time. The study results were briefed to AT&L/ARA on September 7. The major findings in the study address (1) reengineering of the Cost Analysis Requirements Description, (2) timing and synchronization between the Defense Acquisition Board process and the service source selection process, (3) availability and quality of data for cost estimation, (4) improved communication among the program offices, service cost centers, and the CAIG, and (5) the role of the service cost centers in reviews of major programs where the independent cost estimate is prepared by the CAIG. For 2008, the main focus will be to update the DoD Cost Analysis Guidance and Procedures Manual (DoD 5000.04-M). This manual provides guidance concerning (1) CAIG review procedures and process, (2) preparation of the Cost Analysis Requirements Description, and (3) Visibility and Management of O&S Costs (VAMOSC) data collection systems. The manual also provides standard terms and definitions for cost estimating, and explains their use in cost reporting, budgeting, and life-cycle cost estimates presented to the CAIG. IDA will continue to review and help maintain the CAIG's issuances and publications as needed, including assessing the updates needed due to any major revisions of DoD acquisition policies, such as the new emphasis on the concept decision process, portfolio management, time-defined acquisition, or other initiatives.

Classification: Unclassified

Sponsor: OSD PA&E(RA)

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2004	$250,000	1.1
2005	$300,000	1.3
2006	$300,000	1.3
2007	$300,000	1.3
2008	$250,000	1.1

Schedule:

Start	*End*
Aug 2003	Dec 2008

Database: None

Publications: Preparation and/or updates of directives, instructions, manuals, handbooks and guidebooks

Keywords: Government, Policy, Weapon Systems, Life Cycle

IDA–20

Title: Collection of O&S Data from Weapon System Support Contracts

Summary: This task, sponsored jointly by OSD PA&E and AT&L, involved research concerning operating and support (O&S) cost and performance data collection for weapon systems placed under a Performance Based Logistics (PBL) arrangement or other form of Contractor Logistics Support (CLS). Currently, there is very limited capability to collect such data when systems are sustained through contractor support. The purpose of this project was to assess the utility and feasibility of collecting such data without imposing undue burdens on contractors or program offices. The project team completed its review of eleven current weapon systems with significant contractor support that were used as case studies. Numerous on-site visits were held with the appropriate program offices. We supported our sponsor in hosting a series of Integrated Product Team meetings with representatives from OSD and the military service cost centers; the IPT was used to resolve issues and reach consensus on key issues concerning cost reporting for sustainment contracts. Key issues included the frequency of cost reporting, the appropriate level of detail, dollar threshold, and the need to establish cost reporting for firm fixed price contracts. We supported a project status briefing to a conference of the National Defense Industrial Association; the association was the primary source of feedback from defense contractors. We provided the sponsor with our recommended changes to DoD instructions and manuals to formalize collection of cost and performance data from sustainment contracts. We provided overarching guidance to program offices and contractors; this document was prepared in a format suitable as a new chapter in DoD 5000.04-M-1, "Cost and Software Data Reporting Manual." We developed a program Work Breakdown Structure (WBS) for sustainment with terms and definitions; this document was prepared in a format suitable as a new appendix in DoD Military Handbook MIL-HDBK-881A, "Work Breakdown Structure for Defense Materiel Items." We also completed the development of our proposed report formats that would be placed on sustainment contracts to obtain data in a way similar to how DoD now collects data from acquisition development and procurement contracts. We also developed preparation instructions (i.e., Data Item Descriptions) for each of the report formats. Two of the report formats collect cost data, where a more detailed report is used for higher dollar value contracts, and a more aggregate report is used for lower dollar value contracts. Another proposed report format collects data on contract performance, productivity, and workload. The sponsor intends to validate our proposed documents and report formats through a series of pilot programs in 2008 and 2009. Candidates include F-22, JSTARS, Stryker, Shadow UAV, and T-45.

Classification: Unclassified

Sponsor: OSD PA&E(RA)/AT&L(L&MR)

Performer: IDA, Cost Analysis and Research Division
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:	*FY*	*Dollars*	*Staff-years*
	2007	$300,000	1.3

Schedule:	*Start*	*End*
	Aug 2006	Mar 2008

Database: None

Publications: Final Report (March 2008)

Keywords: Government, Analysis, Reviewing/Monitoring, Weapon Systems, Spares/Logistics, Operations and Support, CPR/CCDR, WBS, Readiness, Sustainability, Case Study, Method, Study

IDA–21

Title: Support to the OSD CAIG Analysis of NNSA Weapons Complex Modernization

Summary: The objective of the task is to provide an economic analysis of the competing proposals for modernizing the U.S. nuclear weapons complex. In particular, this task compared the alternative recommended by the Secretary of Energy Advisory Board (SEAB) Nuclear Weapons Complex Infrastructure Task Force with the other embodied in the National Nuclear Security Administration (NNSA) plan called "Complex 2030."

Classification: Unclassified

Sponsor: OSD CAIG

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:	*FY*	*Dollars*	*Staff-years*
	2007	$1,800,000	9

Schedule:	*Start*	*End*
	Dec 2006	Mar 2008

Database: None

Publications: "Economic Analysis of National Nuclear Security Administration (NNSA) Modernization Alternatives," IDA Report R-411, November 2007

Keywords: Government, Weapon Systems, Infrastructure, Economic Analysis

IDA–22

Title: Acquisition Data Consolidation

Summary: This study effort deals with the Acquisition Data Consolidation part of acquisition situational awareness. The USD (AT&L) and other acquisition officials must be situationally aware of all ACAT I programs for which they have management and oversight responsibilities. Such awareness necessitates timely, accurate, and actionable information for input into the decision making process. This study focuses on two key sources of such data, i.e., the Earned Value Management System (EVMS) and the Cost and Software Data Reporting (CSDR) system. Both these systems provide key acquisition data for contract acquisition performance, cost, and schedule analyses.

The study addresses three major areas. First, the study demonstrated the feasibility of establishing an automated central repository system (CRS) for the collection, storage, and distribution of key acquisition data (e.g., EVM data such as the Contract performance Report (CPR)). In July 2007, the Under Secretary of Defense, Acquisition, Technology, and Logistics announced the implementation of the CRS for all ACAT I and IA programs. Second, the study is currently identifying EVM and CSDR contracting issues that inhibit needed reporting and developing recommendations to improve their respective contracting processes. Third, the study will assess existing EVM and CSDR reporting policies and procedures and address common areas and major differences. This phase will also include recommendations to consolidate and integrate the two systems where possible and to generally streamline the reporting processes and related infrastructure.

Revisions to the FARS, DFARs, DoDI 5000.2, the CPR DID, the CCDR DIDs, the CWBS DID, the SRDR DIDs and other EVMS and CSDR documents may be required.

Classification: Unclassified

Sponsor: OSD (PA&E)
WSCAD
The Pentagon, Room BE779
Washington, DC 20301

Co-Sponsor: AT&L

Performer: IDA

Resources:

FY	*Dollars*	*Staff-years*
2006	$300,000	
2007	$180,000	
2008	$175,000	

Schedule:

Start	*End*
Nov 2005	Ongoing

Database: Recommended Detailed Integration Plan and Schedule: 1 November 2005; Central Repository: September 2007; Final Draft Revised Regulations, Policies, Manuals, Formats: June 2008; Regulations, Policies, Manuals, Formats placed into effect: December 2008.

Publications: None

Keywords: Government, Reviewing/Monitoring, Data Collection, Database

IDA–23

Title: Upgrade IDA IMEASURE Model

Summary: IMEASURE (IDA Manpower Estimation and Sortie Utilization Rate Evaluation) is a simulation model that provides estimates of the number of direct maintenance personnel required to meet aircraft wartime sortie generation rate objectives. The major inputs to the model include system R&M estimates at the two-digit work unit code (WUC) level, mission wartime schedule, turnaround time factors (e.g., weapons loading times), maintenance technician specialty requirements by WUC, and LO repair time factors. The objectives of this task is to upgrade and document the model describing its theoretical basis, validation tests performed, previous applications and data requirements. The latest upgrades include a phase-maintenance module and engine backshop module. A user manual is also planned as an Appendix to the summary report. Updates to the documentation were incorporated to reflect the latest changes made to IMEASURE, notably the new routines to handle LO repair, engine depot maintenance and phased maintenance. Remaining effort is to complete the user manual, incorporate the latest refinements made to the model and edit the draft document for final printing.

Draft material has been prepared and a final report is planned for spring 2008.

Classification: Unclassified

Sponsor: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:	*FY*	*Dollars*	*Staff-years*
	2006	$30,000	

Schedule:	*Start*	*End*
	Apr 2006	Jun 2008

Database: N/A

Publications: Report to be developed

Keywords: Government, Estimating, Operations and Support, Mathematical Modeling, Mathematical Model

IDA–24

Title: Forecasting TRICARE Utilization and Costs

Summary: In recent years the Defense Health Program (DHP) has increased substantially because of enhanced benefits and increased utilization by Military Health System (MHS) beneficiaries. There are several factors influencing the increase in utilization. Retired beneficiaries under age 65 have traditionally been marginal users of the MHS because many have other sources of private health insurance. However, many retirees have been returning to the MHS because of rising private health insurance premiums. At the same time, the Global War on Terror has put a heavy strain on military treatment facility (MTF) capacity because of the mobilization of large numbers of Guardsmen/Reservists and the extension of benefits to their family members. Once the capacity of an MTF is reached, additional demand must be met with purchased health care services. Because DoD has no reliable way of forecasting out-year purchased care costs, IDA was tasked with conducting an independent, analytically sound, analysis of the impact of increased demand on DoD purchased care costs. This year's task improved the forecasts by adding two more years of data to the historical trends and expanded the analysis and forecasts to include direct care costs.

Classification: Unclassified

Sponsor: Office of the Director (Program Analysis and Evaluation)
1800 Defense Pentagon, Room BE798
Washington, DC 20301-1800

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:	*FY*	*Dollars*	*Staff-years*
	2006	$400,000	1.3
	2007	$400,000	1.6

Schedule:	*Start*	*End*
	Nov 2007	Oct 2008

Database: None

Publications: Report pending

Keywords: Government, Analysis, Policy, Infrastructure, Manpower/Personnel, Data Collection, Survey, Mathematical Modeling, Economic Analysis, Database, Study

IDA–25

Title: Evaluation of TRICARE Program Costs

Summary: TRICARE is the DoD's health care benefit that brings together the world-wide health care resources of the Army, Navy, and Air Force and supplements that capability with networks of civilian health care providers. Its goals are to provide better access and quality while controlling costs to the government. Since TRICARE's inception, however, Congress has mandated more and more generous benefits for DoD health care beneficiaries and consequently, the cost to the government has spiraled upward. Earlier IDA evaluations compared TRICARE costs in the year of interest with an estimate of what those costs would have been had the traditional CHAMPUS benefit been continued. Because TRICARE has been in place for over a decade, the comparison with CHAMPUS is no longer relevant. The most recent evaluations have examined trends in TRICARE utilization and costs over a 3-year window and compared them with corresponding civilian-sector benchmarks. This year's evaluation continues this approach but adds one more year of data to the trends.

Classification: Unclassified

Sponsor: TRICARE Management Activity (HPA&E)
5111 Leesburg Pike
Suite 517
Falls Church, VA 22041

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2006	$600,000	1.7
2007	$517,000	1.5

Schedule:

Start	*End*
Apr 2007	Mar 2008

Database: None

Publications: Evaluation of the TRICARE Program: FY 2008 Report to Congress

Keywords: Government, Analysis, Policy, Infrastructure, Manpower/Personnel, Data Collection, Survey, Mathematical Modeling, Economic Analysis, Database, Study

IDA–26

Title: Accession/Retention Trade-Offs

Summary: Models are being developed to facilitate analysis of alternative policies for managing Navy officer inventories. Proper management requires that the Navy balance accession and retention to achieve the desired mix of personnel across the experience distribution in every officer community. Historically personnel management has focused on evaluating and predicting retention behavior in order to derive the year-by-year accession numbers needed to achieve authorized end strength. Little time or effort has been used to address the question of what combination of accessions and retention could meet requirements most economically.

Classification: Unclassified

Sponsors: OSD(PA&E)
EMAD

The Pentagon, Room BE829
Washington, DC 20301

Co-Sponsor: Office of the Chief of Naval Operations, N81

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$250,000	1.0

Schedule:

Start	*End*
Jul 2007	Jul 2008

Database: None

Publications: None

Keywords: Government, Estimating, Analysis, Policy, Programming, Manpower/Personnel, Variable Costs, Computer Model, Study

IDA–27

Title: Cost Analysis Support to Taiwan Ministry of Defense

Summary: Senior members of Taiwan's Ministry of National Defense (MND) and military departments are facing important decisions on how to strengthen their national defenses. These decisions include choices of weapon system acquisitions that will result in funding requests being sent to the Legislative Yuan. In the past, representatives of the MND have had difficulty justifying such requests, particularly the proposed costs. The MND is determined to improve the quality and credibility of the information used to develop and support budget requests by strengthening its capability to estimate costs of defense systems and forces and improving its defense resource management practices. IDA is assisting their resource and acquisition offices to build and strengthen their capabilities to perform these functions.

Classification: Unclassified

Sponsor: Defense Security Cooperation Agency (DSCA) and the Director-General, Integrated Assessment Office (IAO), Ministry of National Defense, Taiwan

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2005	$110,000	
2007	$75,000	
2008	$75,000	

Schedule:

Start	*End*
Apr 2005	Dec 2008

Database: None

Publications: None

Keywords: Government, Estimating, Weapon Systems, Forces, Life Cycle, Case Study, Mathematical Modeling, Review, Economic Analysis

IDA–28

Title: Resource Analysis Course for PA&E/Other Analysts

Summary: This project provides a 5 day course for newly assigned OSD PA&E and CAIG analysts along with selected analysts from the other OSD, Joint Staff, Defense Agency, and Service staffs. Newly assigned analysts can require 12–18 months before fully understanding how to prepare, coordinate and integrate a thorough program or cost analysis for key program events (e.g., Milestones A, B or C, DAE review, AoA, etc.). In this course the analyst is exposed to, as a minimum, the following areas: PPBES, FYDP data structure, requirements process, work breakdown structure(s), cost estimating relationships (CERs), learning curves, inflation indices, CSDR and FYDP databases, intricacies of DoD 5000 and CJCS 3170 guidance, Earned Value, Cost Performance Reports, schedule variance, effectiveness analysis, and risk analysis. This course would ensure the PA&E, CAIG and staff analysts are exposed to the essentials of building a program assessment/cost estimate shortly after being assigned to their respective organization.

Classification: Unclassified

Sponsor: OSD(PA&E), Resource Analysis
The Pentagon, Room BE779
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2002	$100,000	
2003	$117,773	
2004	$75,000	
2005	$135,737	
2006	$155,000	
2007	$155,000	
2008	$155,000	

Schedule:

Start	*End*
Jun 2002	Indefinite

Database: None

Publications: None

Keywords: Government, Analysis, Training, Review

IDA–29

Title: Cost Analysis Education

Summary: IDA and George Mason University (GMU) develop, improve and provide annually a graduate-level course in Cost Analysis aimed at novice and intermediate cost analysts who work for or support the DoD. GMU grants credits to those who enroll and successfully complete the course. Government employees are allowed to attend free of charge but receive no credit. This course is one of two core courses in GMU's Master's degree program in Military Operations Research.

Classification: Unclassified

Sponsor: IDA Central Research Program
OSD(PA&E)
The Pentagon, Room BE779
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:	*FY*	*Dollars*	*Staff-years*
	2008	$10,000	

Schedule:	*Start*	*End*
	Jan 2008	May 2008

Database: None

Publications: Course material

Keywords: Government, Estimating, Analysis, Training, Review

IDA–30

Title: DoD Enlistment Early Warning System

Summary: This task updates enlistment early warning systems quarterly for each Service. We update forecasting models for high quality enlistment contracts by Service and gender, and use them to analyze the risk of a recruiting failure over the next twelve months.

Classification: Unclassified

Sponsor: OSD(AP), Accession Policy

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:	*FY*	*Dollars*	*Staff-years*
	2007	$130,000	0.5
	2008	$75,000	0.3

Schedule:	*Start*	*End*
	Jul 2007	Mar 2009

Database: None

Publications: None

Keywords: Government, Analysis, Manpower/Personnel, Mathematical Modeling, Computer Model

IDA–31

Title: Support to the Department of Veterans Affairs

Summary: The objective of the task is to provide analytical support to the Veterans Affairs Office of Policy, Planning, and Preparedness. The first task is to conduct an Independent Validation and Verification of the Veterans Actuarial Model. This was completed in June 2005. The second task is to review literature on veterans' economic security and identify relevant findings and trends. The third task is to perform a detailed scientific study to determine the reasons for the observed differences across states in disability compensation payments to veterans.

Classification: Unclassified

Sponsor: Department of Veterans Affairs

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2004	$400,000	2.0
2005	$871,946	3.5
2006	$750,000	3.5
2007	$0	0
2008	$0	0

Schedule:

Start	*End*
Sep 2004	Oct 2007

Database: None

Publications: "Independent Verification and Validation of the Veterans Actuarial Model: Final Report," IDA Document D-3129, June 2005

"Analysis of Differences in Disability Compensation in the Department of Veteran Affairs: IDA Paper P-4175 Volume 1: Final Report, December 2006

"Analysis of Differences in Disability Compensation in the Department of Veteran Affairs: IDA Paper P-4175 Volume 2: Supporting Documentation, March 2007

Keywords: Government, Estimating, Budgeting, Infrastructure, Data Collection, Mathematical Modeling, Database

IDA–32

Title: Resource Analysis for T&E – CTEIP

Summary: IDA activities include research, analyses and special studies to support planning, management and effective execution of the Central Test and Evaluation Investment Program (CTEIP). Primary activities focus on resource analysis to support budget planning, resource allocation to developmental projects, and tracking project-level fiscal execution. Other analysis activities include review of technical justification and documentation for developmental projects to meet joint and/or multi-Service test requirements, identification of project execution issues, and the development of proposed corrective contract or management alternatives.

This task is a continuation of work performed under a previous task order, same title, for the Deputy Director, Operational Test and Evaluation (DOT&E).

Classification: Unclassified

Sponsor: Director
Test Resources Management Center
1225 S. Clark Street
Arlington, VA 22201

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2006	$650,000	4.0
2007	$1,100,000	5.0
2008	$1,200.000	5.0

Schedule:

Start	*End*
Oct 2006	Sep 2008

Database: None

Publications: None

Keywords: Government, Analysis, Reviewing/Monitoring, Infrastructure, Test and Evaluation, Review

IDA–33

Title: Analytical Support for the Test and Evaluation Science and Technology (TEST) Program

Summary: IDA activities include research, analyses and special studies to support the management and execution of the TEST Program. Task activities include providing resource analysis, research and analyses of promising technologies, determination of alternative contracting strategies, recommendations on the selection of research and developmental projects, conducting special studies, development of analyses to support preparation of management and resource documentation, and monitoring of research project progress.

This task is a continuation of work performed under a previous task order, same title, for the Deputy Director, Operational Test and Evaluation (DOT&E).

Classification: Unclassified

Sponsor: Director, Test Resource Management Center
3010 Defense Pentagon
Washington, DC 20301

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2005	$100,000	0.5
2006	$325,000	1.5
2007	$450,000	2.0
2008	$480,000	2.0

Schedule:

Start	*End*
Sep 2005	Sep 2008

Database: None

Publications: None

Keywords: Government, Analysis, Test and Evaluation, Study

IDA–34

Title: Resource Analysis for Operational Test and Evaluation (OT&E)

Summary: Conduct resource analysis to support Office of the Director, Operational Test and Evaluation, in its statutory responsibility to advise the Secretary of Defense on the adequacy of T&E resources and test processes that support the operational test and evaluation phase of acquisition programs. Conduct analyses to support DOT&E participation in senior-level OSD activities associated with the Planning, Programming, Budgeting and Execution System and development of resource related policy recommendations throughout the PPBE cycle.

FY07 areas of emphasis included studies and analysis to answer a Congressional inquiry on the adequacy of DOT&E's staffing to execute its responsibilities; initial work on a Business Plan for the Department's use of modeling and simulation within the T&E function: analysis of test protocols and policy issues associated with testing of non-lethal weapons and other emerging systems; analyses to support DOT&E participation within the Department's Budget and Program Review process; analyses of potential impacts to the Department's T&E activities due to encroachment, development of Energy Corridors and location of new wind-farms for production of electrical energy.

FY08 focus area are expected to include: Resource analyses (funding and manpower) supporting the Services' operational test agencies; analyses of the DoD Test Resource Strategic Master Plan and T&E Budget Certification; a study on the potential benefits for

a greater patterning between Test and Training; the potential benefits of implementing a lifecycle evaluation plan to improve data collection and sustainability analyses; analyses supporting T&E budget development; and sponsorship of a high-level forum/symposium to focus on improving the Department's T&E function resulting in a White Paper for in transition to a new administration.

Classification: Unclassified

Sponsor: Principal Deputy Director, Operational Test and Evaluation
The Pentagon, Room 3D947
1700 Defense Pentagon
Washington, DC 20301-1700

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
1998	$200,000	1.2
1999	$100,000	0.6
2000	$400,000	2.5
2001	$400,000	1.9
2002	$400,000	2.0
2003	$300,000	2.5
2004	$300,000	2.0
2005	$2,900,000	14.5
2006	$2,500,000	12.0
2007	$3,700,000	16.0
2008	$3,200,000	14.0

Schedule:

Start	*End*
Feb 1998	Ongoing

Database:

Title:	OT&E Resources
Description:	Programmed and Budgeted Funds, Manpower
Automation:	Excel spreadsheets, Knowledge-based information retrieval system, MS Project

Publications:

"DOT&E GPRA Methodology and Definitions, FY 2001: Government Performance and Results Act," IDA Document D-2570 (NS), Unclassified, FY 2001, T. Musson and I. Boyles

"Marine Corps Operational Test and Evaluation Activity Manpower Assessment," IDA Document D-2578 (NS), Unclassified, February 2001, Charles T. Ackerman and George C. Tolis

"Demographic Analysis of the Operational Test Agencies' Workforce," IDA Document D-2618, Unclassified, March 2002, Dennis O. Madl, Tom A. Musson, and George C. Tolis

"Effect of the Proposed Closure of NASA's Subsonic Wind Tunnels, An Assessment of Alternatives," IDA Paper P-3858, Unclassified, April 2004, Dennis O. Madl, Terrence A. Trepal, Alexander F. Money and James G. Mitchell

"The Partnership Between the Boeing Company and the Air Force's National Radar Cross Section Test Facility: A Review," IDA Document D-2577 (NS), February 2001, W. Andrew Wisdom and John G. Honig

"Director, Operational Test and Evaluation (DOT&E) Staffing Study," IDA Paper P-4314, April 2008, J. Forrest, et al.

Keywords: Government, Analysis, Reviewing/Monitoring, Policy, Programming, Budgeting, Weapon Systems, Facilities, Infrastructure, Manpower/Personnel, Test and Evaluation, Environment, Data Collection, Case Study

IDA–35

Title: Resource Analysis for Test and Evaluation Strategic Planning, Budget Certification and Range Policy for the DoD Test Resource Management Center (DTRMC)

Summary: Conduct resource analysis to support the DTRMC. The Center has statutory responsibility to prepare a T&E infrastructure strategic plan at least every two years, and to certify to the Secretary of Defense whether service T&E budgets are adequate to provide affordable testing and to support the strategic plan. The Center also undertakes policy analyses of T&E user charge policies, access to test facilities, inter-agency agreements for operation and retention of T&E capabilities, and other topics vital to maintaining a robust T&E capability for the Department. IDA performs studies and analyses for the DTRMC across the full range of its activities. Also includes special studies on T&E infrastructure and DoD-NASA inter-agency agreements on T&E capabilities and potential shared usage.

FY07 activities and special studies included: an expanded analyses of Air Force decisions to close/consolidate various test facilities; analyses to support development of the TRMC bi-annual DoD Test resources master Plan; analyses to support revision of the DoD Directive and Instruction for the oversight and operation of the Department's Major Range and Test facility Base; various manpower analyses to define the status of the Department's Acquisition and T&E workforce demographics; analyses supporting various agreements among the DoD, NASA and other Agencies on the use and retention of major aeronautical test facilities; analyses to support the development of a practical oversight function of Service owned T&E facilities/capabilities; and various budget and process analyses to be used in preparing a Congressional mandated certification of the adequacy of budget proposals to support the Department's T&E functions.

FY08 anticipated studies and analyses efforts include: Continued analyses support for implementation of the new interagency agreements on the charge policy and use of aeronautical test facilities; increased analytic work supporting initiatives to counter encroachment and preserve existing T&E open-air range space; continue analyses to improve the overall oversight and budget certification processes; expanded analytic efforts to review all proposed reductions/divestitures of Service own and operated T&E capabilities/facilities; and the continuation of collection of information and analyses supporting the next update of the DoD T&E Resources master Plan.

Classification: Unclassified

Sponsor: Director, Defense Test Resource Management Center
1225 South Clark St.
Crystal Gateway 2, Suite 1200
Arlington, VA 22202

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2004	$500,000	2.5
2005	$800,000	4.0
2006	$1,200,000	5.5
2007	$1,900,000	7.0
2008	$2,300,000	9.5

Schedule:

Start	*End*
Jun 2004	Ongoing

Database: *Title:* DoD T&E Resources

Description: Programmed and Budgeted Funds, Manpower

Automation: Excel spreadsheets; Access databases; Knowledge-base information retrieval system; Microsoft Project

Publications: None to date

Keywords: Government, Analysis, Reviewing/Monitoring, Policy, Programming, Budgeting, Facilities, Manpower/Personnel, SD&D, Infrastructure, Test and Evaluation, Labor, Overhead/Indirect, Acquisition Strategy, Data Collection, Economic Analysis, Database, Case Study, Study

IDA–36

Title: Resource and Technical Analyses for the National Aeronautics RDT&E Infrastructure Plan

Summary: Conduct research and analyses to support the Test Resource Management Center in development the test infrastructure portion of the new National Aeronautical RDT&E Plan required by the Presidential Executive Order 13419.

FY07 activity included research and analyses of emerging aeronautical concepts and anticipated test and evaluation needs and comparison with existing and planned T&E capabilities to define the specific issues in providing needed capabilities in the future. Participate on Inter-agency working groups to develop the overall national plan and identify the specific needs for the T&E Infrastructure to be included. Conducted research and analyses and wrote the draft Infrastructure Plan.

FY08 anticipated activities are expected to be minimal, using residual FY07 funds to provide some analyses and support to the TRMC participation in follow-on working group meetings.

Classification: Unclassified

Sponsor: Director, Defense Test Resource Management Center
1225 South Clark St.
Crystal Gateway 2, Suite 1200
Arlington, VA 22202

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2007	$300,000	1.0
2008	$0	0

Schedule:

Start	*End*
Jun 2007	Ongoing

Database: *Title:* None

Description:
Automation:

Publications: Draft Infrastructure Plan, IDA informal product, August, 2007, T. Trepal

Keywords: Government, Analysis, SD&D, Test and Evaluation, Infrastructure, Study

IDA–37

Title: Resource and Technical Analyses for the National Aeronautics RDT&E Infrastructure Plan – NASA

Summary: Conduct research and analyses to support of the NASA in development the test infrastructure portion of the new National Aeronautical RDT&E Plan required by the Presidential Executive Order 13419.

FY08 activity is anticipated to provide a small amount of research and analyses to assess the potential impacts on NASA from the proposed elements of the new national plan.

Classification: Unclassified

Sponsor: NASA Headquarters
Mr. Karl Loutinsky
Mail Suite: 6M34
300 E Street
Washington, DC, 20546-0001

Performer: IDA
4850 Mark Center Drive
Alexandria, VA 22311-1882

Resources:

FY	*Dollars*	*Staff-years*
2008	$50,000	0.20

Schedule:

Start	*End*
Nov 2007	Oct 2008

Database: *Title:* None
Description:
Automation:

Publications: None to date

Keywords: Government, Analysis, Space Systems, Test and Evaluation, Infrastructure

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Cloos, John J.
Roark, Lance M.

5d. PROJECT NUMBER

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4850 Mark Center Drive
Alexandria, VA 22311-1882

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IDA Document D-3571

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Office of the Secretary of Defense
(Program Analysis and Evaluation)
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14. ABSTRACT

At the annual IDA Cost Research Workshop, the Office of the Secretary of Defense's Cost Analysis Improvement Group (CAIG) meets with representatives from selected government offices, Federally Funded Research and Development Centers, military universities, and other organizations involved in defense-related cost research to discuss ongoing and planned cost studies. The theme of the 2008 IDA Cost Research Workshop was quality issues with the Department of Defense contractor data reporting systems. This document summarizes the main points made during the workshop proceedings and presents summaries of current and planned cost research projects at offices and organizations that conduct defense-related cost analysis.

15. SUBJECT TERMS
Cost Analysis; Cost Data; Data Collection; Department of Defense; Defense Cost and Resource Management

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